English

HP NetServer LC 2000/2000r Installation Guide

HP Part Number D8514-90000
Printed November 1999

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Audience Assumptions

The guide is for the person who installs, administers, and troubleshoots LAN servers. Hewlett-Packard Company assumes you are qualified in the servicing of computer equipment and trained in recognizing hazards in products with hazardous energy levels and are familiar with weight and stability precautions for rack installations.

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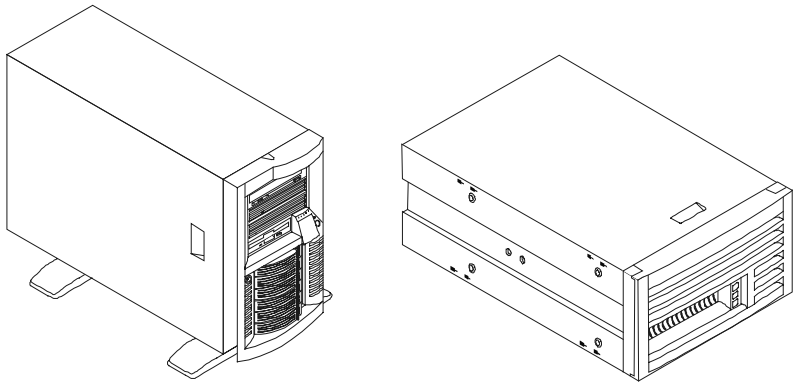
1 Setting Up the HP NetServer

Installation Guidelines

This Installation Guide is for the HP NetServer LC 2000 pedestal model, and the HP NetServer LC 2000r rack-optimized model.



LC 2000 (Pedestal Model) **LC 2000r (Rack-mounted Model)**

Figure 1-1. HP NetServers

- For a trouble-free installation, read this chapter before taking the HP NetServer out of its box. This chapter lists what to do, and in what order. Choose either:
  - ◊ HP NetServer LC 2000 for pedestal installation
  - ◊ HP NetServer LC 2000r for rack-mounted installation
- Observe all warnings and cautions.
- Unique to the LC 2000r are the:
  - ◊ Universal bezel that fits HP System/E and System/U racks, as well as some third-party racks
  - ◊ Unique Bezel hinge and latch
  - ◊ Rack slides
  - ◊ Cable Management Arm

- Use the removable and reusable rack-mounting handles to move and place the LC 2000r in the rack. Remove the handles only when you have secured the HP NetServer to the rack slides.
- The height at which you install the HP NetServer in the rack determines how you will service the HP NetServer.

Pedestal Installation

Follow the setup steps in the exact order shown below for a successful pedestal installation. Skip any steps that do not apply to your installation.

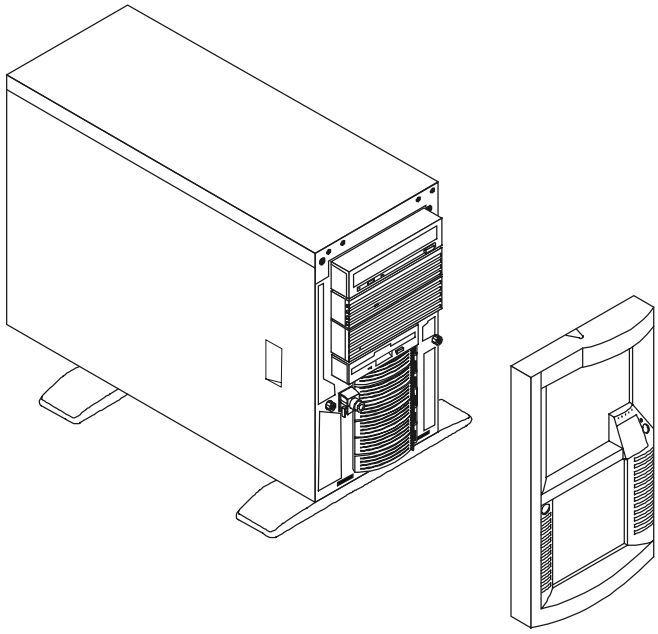


Figure 1-2. HP NetServer LC 2000

1. Unpack the shipping box and verify the contents against the Contents List included with your HP NetServer.
   a. If anything is missing or damaged, call your reseller.
   b. Store the empty boxes and packing material in a safe place.

      This is especially important if you plan to ship the HP NetServer elsewhere for final installation.

English

CAUTION	The HP NetServer LC 2000 weighs approximately 80 lbs. (36 kg), which may be more than one person should lift. Do not attempt to lift the HP NetServer by yourself. Failure to observe this warning could result in serious injury, or damage to the HP NetServer.

2. Familiarize yourself with the HP NetServer's controls, ports, and indicators.

   Refer to Chapter 2, "Controls, Ports, and Indicators."

3. If you have optional items to add to the HP NetServer (memory, accessory boards, or processors), remove the front bezel and the left cover.

   ◊ If there are no optional items to install, skip to step 8.

   ◊ Refer to Chapter 3, "Opening and Closing the HP NetServer."

4. If you have items such as a processor, DIMMs, and accessory boards to install, do so at this time.

   All these items are installed on the system board without removing it and can be installed at the same time.

   Refer to Chapter 5, "Installing Additional Memory," Chapter 6, "Installing Additional Boards," and Chapter 7, "Installing Additional Processors."

5. Install internal non-hot-swap mass storage devices such as hard drives and tape back-ups into the front of the HP NetServer.

   Refer to Chapter 4, "Installing Mass Storage Devices."

6. Reconnect all internal cables.

7. Replace all covers, including the bezel.

   Refer to Chapter 3, "Opening and Closing the HP NetServer."

8. Install all Hot Swap disk drives into the front of the NetServer.

   Refer to Chapter 4, "Installing Mass Storage Devices."

9. If a second power supply (optional) is needed, install it into the rear of the HP NetServer.

   Refer to the Power Supply accessory guide.

10. Hook up the monitor, keyboard, and mouse to the rear of the HP NetServer.

    Refer to Chapter 9, "Connecting Monitor, Keyboard, Mouse, and UPS."

11. Connect all other external cables to the rear of the HP NetServer.
12. Obtain the release history of the *HP NetServer Navigator CD-ROM* provided with the HP NetServer to ensure you have the latest Navigator CD-ROM.

    Refer to Chapter 10, "Configuring the HP NetServer."
13. Power up the HP NetServer.

    Refer to Chapter 2, "Controls, Ports, and Indicators."
14. Insert the Navigator CD-ROM and reboot the HP NetServer.
15. Check the Navigator README file for important installation information.

    Refer to Chapter 10, "Configuring the HP NetServer."
16. Configure the HP NetServer with Configuration Assistant from the Navigator CD-ROM, using the Express Configuration option.

    Refer to Chapter 10, "Configuring the HP NetServer."

NOTE	To fully configure the HP NetServer, all external components should be cabled and online.

17. Verify the HP NetServer's operation and troubleshoot if necessary.

    Your HP NetServer installation should be complete. If not, refer to Chapter 12, "Troubleshooting."
18. If you plan to ship the fully-configured HP NetServer LC 2000 to a different destination:
    a. Label each cable and component to facilitate re-assembly.
    b. Repack the components in the original packing material, and prepare each one for shipment.

CAUTION	It is critical to disassemble and rebox all electronic components before reshipment. Electronic components (especially hard disk drives) can sustain damage when shipped in rack enclosures.

English

Rack Mount Installation

Follow the setup steps in the exact order shown below for a successful rack installation. Skip any steps that do not apply to your installation.

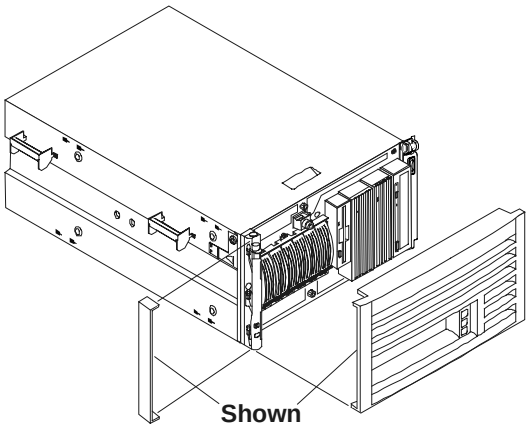


Figure 1-3. HP NetServer LC 2000r

1. Unpack the shipping box and verify the contents against the Contents List included with your HP NetServer.
   a. If anything is missing or damaged, call your reseller.
   b. Store the empty boxes and packing material in a safe place.

      This is especially important if you plan to ship the HP NetServer elsewhere for final installation.

WARNING	To prevent serious injury or damage to the HP NetServer, do not attempt to lift the HP NetServer by yourself. The HP NetServer LC 2000r weighs approximately 80 lbs. (36 kg) and requires more than one person to lift it.

2. Familiarize yourself with the HP NetServer's controls, ports, and indicators.

   Refer to Chapter 2, "Controls, Ports, and Indicators."

3. If you have optional items to add to the HP NetServer (memory, accessory boards, mass storage, or processors), remove the bezel and the top cover.
   - ◊ If there are no optional items to install, skip to Step 12.
   - ◊ Refer to Chapter 3, "Opening and Closing the HP NetServer."
4. If you have items such as a processor, DIMMs, and accessory boards to install, do so at this time.

   All these items are installed on the system board without removing it and can be installed at the same time.

   Refer to Chapter 5, "Installing Additional Memory," Chapter 6, "Installing Additional Boards," and Chapter 7, "Installing Additional Processors."
5. If you are adding internal mass storage devices such as hard drives or tape back up devices into the front of the HP NetServer, do so next.

   Refer to Chapter 4, "Installing Mass Storage Devices."
6. Reconnect internal cables as needed.
7. Install the HP NetServer LC 2000r into the rack.

   Refer to Chapter 8, "Rack-Mounting the HP NetServer," for the Rack System/E or System/U, or Chapter 13, "Alternative Rack Mounting," for the HP Systems Rack.
8. If the rack-mount system accepts the Cable Management Arm, install it onto the rear of the rack and the HP NetServer.

   Refer to Chapter 8, "Rack-Mounting the HP NetServer," for a Rack System/E or System/U, or Chapter 13, "Alternative Rack Mounting," for the HP Systems Rack.
9. If a cover was removed earlier, replace the cover, but not the bezel.

   Refer to Chapter 3, "Opening and Closing the HP NetServer."
10. Install the SCSI Hot-Swap hard drives into the front of the HP NetServer.

    The bezel must be removed to install the SCSI Hot-Swap drives. Refer to Chapter 4, "Installing Mass Storage Devices."
11. Replace the bezel.

    Refer to Chapter 3, "Opening and Closing the HP NetServer."
12. If a second power supply (optional) is required, install it into the rear of the HP NetServer.

    Refer to the Power Supply accessory guide.

English

13. Connect the monitor, keyboard, and mouse to the rear of the HP NetServer.

    Refer to Chapter 9, "Connecting Monitor, Keyboard, Mouse, and UPS."

14. Connect all other external cables to the rear of the HP NetServer.
15. Obtain the release history of the *HP NetServer Navigator CD-ROM* provided with the HP NetServer, to ensure you have the latest Navigator CD-ROM.

    Refer to Chapter 10, "Configuring the HP NetServer."

16. Power up the HP NetServer.

    Refer to Chapter 2, "Controls, Ports, and Indicators."

17. Insert the Navigator CD-ROM and reboot the HP NetServer.
18. Check the Navigator README file for important installation information.

    Refer to Chapter 10, "Configuring the HP NetServer."

19. Configure the HP NetServer with Configuration Assistant from the Navigator CD-ROM, using the Express Configuration option.

    Refer to Chapter 10, "Configuring the HP NetServer."

NOTE	To fully configure the HP NetServer, all the rack components should be cabled and online (though not necessarily installed in the rack.) Use the *HP NetServer LC 2000r Rack Cabling Reference Guide* for more details.

20. Verify the HP NetServer's operation and troubleshoot as necessary.

    Your HP NetServer installation should be complete. If not, refer to Chapter 12, "Troubleshooting."

21. If you plan to ship the fully-configured HP NetServer LC 2000r to a different destination:
    a. Label each cable and component to facilitate re-assembly.
    b. Remove all components from the rack, including external mass storage.
    c. Repack the components in the original packing material, and prepare each one for shipment.

CAUTION	It is critical to disassemble and rebox all electronic components before reshipment. Electronic components (especially hard disk drives) can sustain damage when shipped in rack enclosures.

English

2 Controls, Ports, and Indicators

Front of HP NetServer

This chapter describes the controls, ports and indicators on the front and rear of the HP NetServer LC 2000 and LC 2000r. Figures 2-1 and 2-2 below show the HP NetServers LC 2000/LC 2000r as pedestal and rack models respectively.

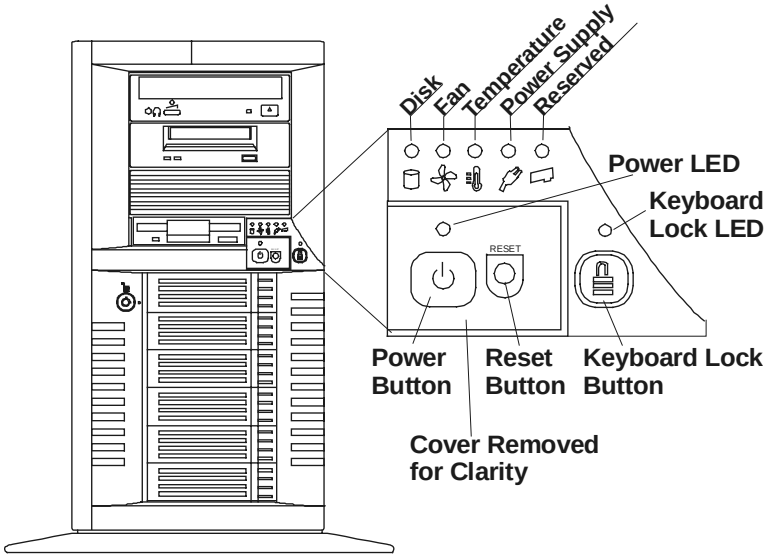


Figure 2-1. HP NetServer LC 2000 (front view)

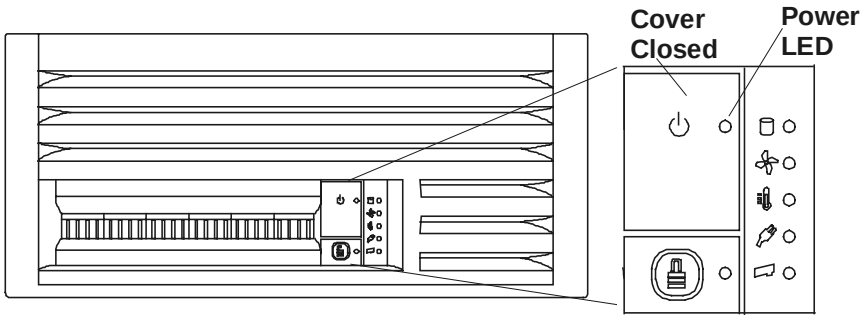
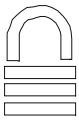


Figure 2-2. HP NetServer LC 2000r (front view)

Power, Reset, and Keyboard Lock Buttons

The control buttons shown in Figures 2-1 and 2-2 are described in the Table 2-1.

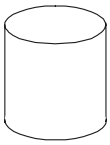
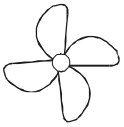
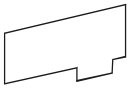
Table 2-1. Power, Reset, and Keyboard Lock Buttons and LEDs

Control/LED	Description
Power On/Off/ Sleep Button	This button turns the HP NetServer power On or Off, and if available, also transitions the NetServer between Power On and sleep states. If sleep states are not available, then this button only turns power On or Off. The sleep states are NOS dependent and not available if your NOS does not support power management based on the ACPI (Advanced Configuration and Power Interface) standard. Refer to "Applying Power to the HP NetServer" and "Sleep States (ACPI)" later in this chapter.
Power On/Off/ Sleep LED	This LED glows steady green when power is on, and goes dark when the NetServer is powered off. If the NetServer is under ACPI control, this LED will flash green on and off when in an inactive sleep state.
Reset Button	Performs a system (hard) reset.
Keyboard Lock Button 	Puts the NetServer in a locked mode, which locks the keyboard, if the NetServer was configured for keyboard lock or Network Server mode in the Setup Utility. This includes keyboard lock, power button lock, and video blanking. The reset button is also disabled.
Keyboard Lock LED	This LED glows solid green when the HP NetServer's keyboard is locked, and is dark at all other times.

English

Front Panel LED Indicators

Table 2-2. Component Indicators

LED ICON	Description
Disk LED 	This Disk LED has two distinctive states: • off for inactive operation • blinking Green for SCSI drive activity.
Temperature LED	This Temperature LED has three distinctive colors: • steady Green for normal operation • blinking Red at 1 Hz blink rate for an overheated condition inside the HP NetServer • blinking Amber at 0.5 Hz blink rate for a warning condition.
Fan LED 	This Fan LED has three distinctive colors: • steady Green for normal operation • blinking Red at 1 Hz blink rate for a non-operational fan condition inside the NetServer • blinking Amber at 0.5 Hz blink rate for a warning condition indicating one of the fans may be turning too slowly.
RPS LED	This RPS (Redundant Power Supply) LED has three distinctive colors: • steady Green for normal operation • blinking Red at 1 Hz blink rate for a bad power supply • blinking Amber at 0.5 Hz blink rate for a warning condition indicating a power supply may not be working correctly.
Reserved 	This LED is reserved and not used in this release.

Hot Swap Disk Drive Indicators

Each of the Hot Swap hard disk drives has two LED indicators, one for operational status and one for activity status. Light pipes on each drive module transmit light to the front from the LEDs on the inside rear of the hot-swap mass storage cage. See Table 2-3 and Figure 2-3.

Table 2-3. Hot Swap Hard Disk Drive LED Indications

Status LED	Activity Status LED
Off: Disk not present, or not connected to the cage	**Off**: No disk activity
Green (solid): Disk present	**Green (flashing)**: Accessing disk
	Green (solid for more than one minute): Disk spinning up, or "hung"
Amber (flashing): Disk failure predicted	
Red (flashing): Disk failed	
Red (solid): No +12 volt power	

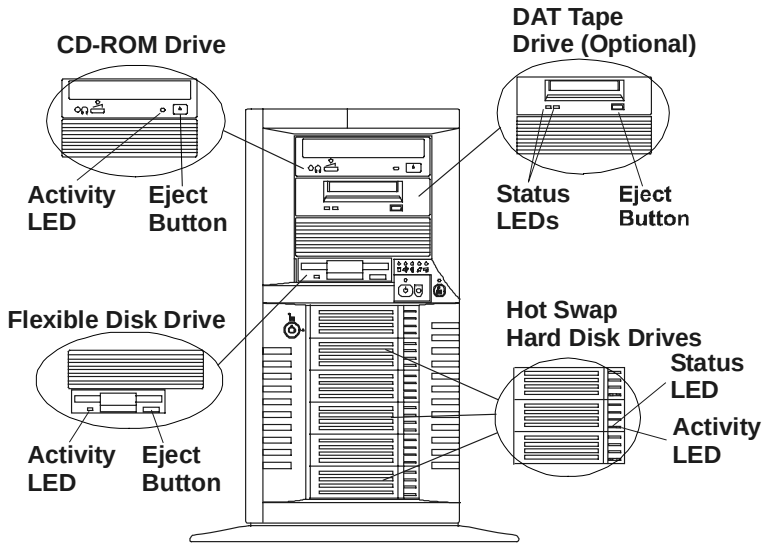


Figure 2-3. Drive LED Indicators

English

Non-Hot Swap Device Indicators

The indicators for non-Hot Swap devices, which provide operational status, are also shown in Figure 2-3. The indicators shown in Figure 2-3 also apply to the rack-mount model (LC 2000r). See Table 2-4 for Backup Tape drive LED Codes.

Table 2-4. Backup Tape Drive LED Codes

Left LED	Right LED	Definition
Off	Off	No Power
On	Off	Cartridge Loaded, but No activity
Flashing*	Off	Cartridge Loaded and Active
Pulsing**	Off	Loading/Unloading/Ejecting/Power-On
Off	On	Self Test Fail
Off	Pulsing**	No Cartridge, but Caution (cleaning required)
On	Pulsing**	Cartridge Loaded, but Caution (cleaning required)
Flashing*	Pulsing**	Cartridge Loaded, Drive Active, Caution (cleaning required)
Pulsing**	Pulsing**	Cartridge Loading/Unloading, Caution (cleaning required)

* Flashing at 4 Hz rate

** Pulsing at 2 Hz rate

NOTE For more information on the HP Tape Drive and its error codes, refer to the documentation provided with the tape drive or refer to Hewlett-Packard's web site, at: `http://www.hp.com.`

Refer to Chapter 4, "Installing Mass Storage Devices," for installation information.

Rear Panel Indicators and Ports

The HP NetServer's rear panel includes communication ports, the AC power inlets, and the NetServer's power supplies.

Figure 2-4 shows the rear of the HP NetServer.

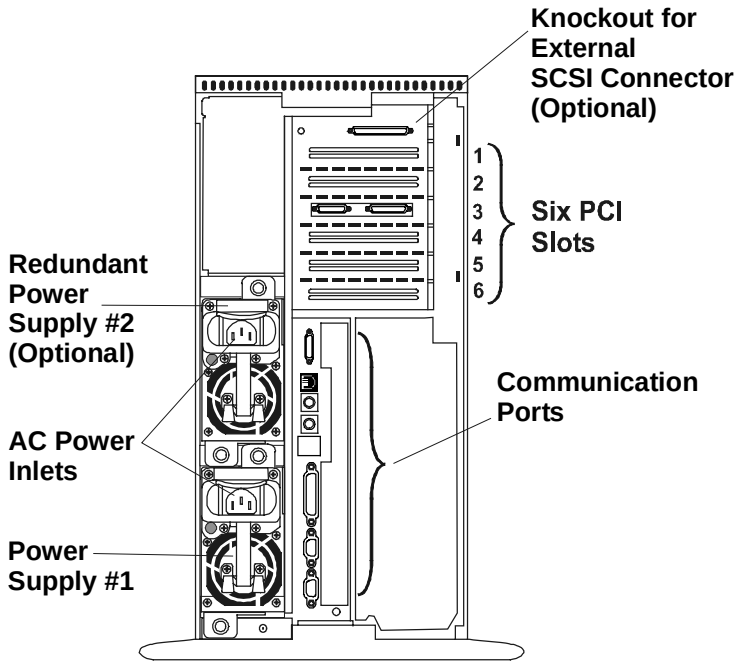


Figure 2-4. Rear Panel of the HP NetServer

CAUTION	To prevent a power supply from overheating, ensure the other power supply opening remains covered, if a second supply is not used. If the second supply is used, keep the cover in case you need to remove one supply for repair.

English

Power Supply Module Indicator

Each HP NetServer power supply module has an indicator as shown in Figure 2-5, and each power supply has its own power cord connection. The HP NetServer comes with one power supply module standard, and a second power supply module for redundancy is optional.

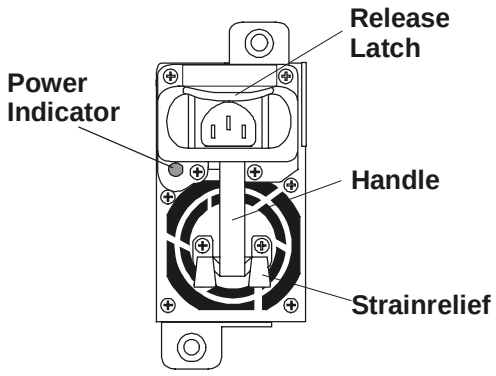


Figure 2-5. Power Supply LED

NOTE	The release latch, which is spring loaded, must be up to insert the power cord. The power supply can not be removed from the chassis with the power cord connected to the AC In connector. The power cord must be removed before pushing down on the release latch to free the power supply from the chassis.

Table 2-5. Power Supply LED Indicator Descriptions

Green LED	Power Supply and NetServer Status
Steady Green	This indicates the HP NetServer is powered up and operating normally, or is in an ACPI suspend state.
Off	This indicates the NetServer is powered off, the AC line cord is unplugged, or the power supply has failed, which may include a fan failure (turning too slowly). If a fan fails in one of two supplies, the defective supply will continue to operate until it reaches the thermal shutdown limit. The second power supply (redundant power supply) will continue to operate providing the necessary power. Refer to Chapter 12, "Troubleshooting."

Communication Ports

The connectors on the HP NetServer's rear panel are shown in Figure 2-6 and described below.

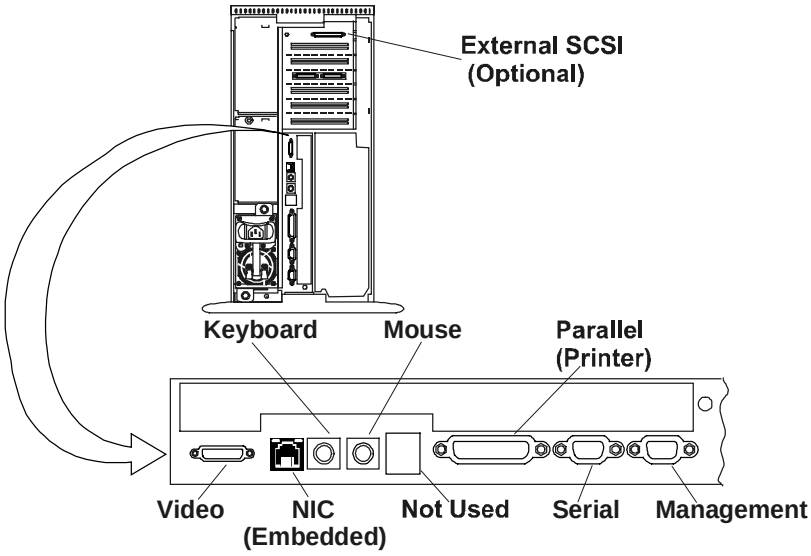


Figure 2-6. Rear Panel Ports

- Management – This connector supports the embedded Integrated Remote Assistant and links the HP NetServer to a console for real time monitoring and diagnosis of the NetServer's operation.
- Serial A – This is the standard serial port connector.
- Parallel – This is the standard parallel printer port connection.
- Mouse – This connector accepts a standard PS/2 mouse.
- Keyboard – This connector accepts a standard PS/2 keyboard.
- NIC – This connector supports the embedded NIC (Network Interface Card) port on the system board. This is a RJ-45 connector supporting 10/100 BaseT Ethernet.
- Video – This connector provides the video signal to drive the NetServer's monitor. Refer to "Video Support" in Appendix A for drivers and supported resolutions.

English

NIC Indicators

The embedded NIC (Network Interface Card) has two LEDs associated with it, which can only be seen from the rear of the HP NetServer. See Figure 2-7 and Table 2-6.

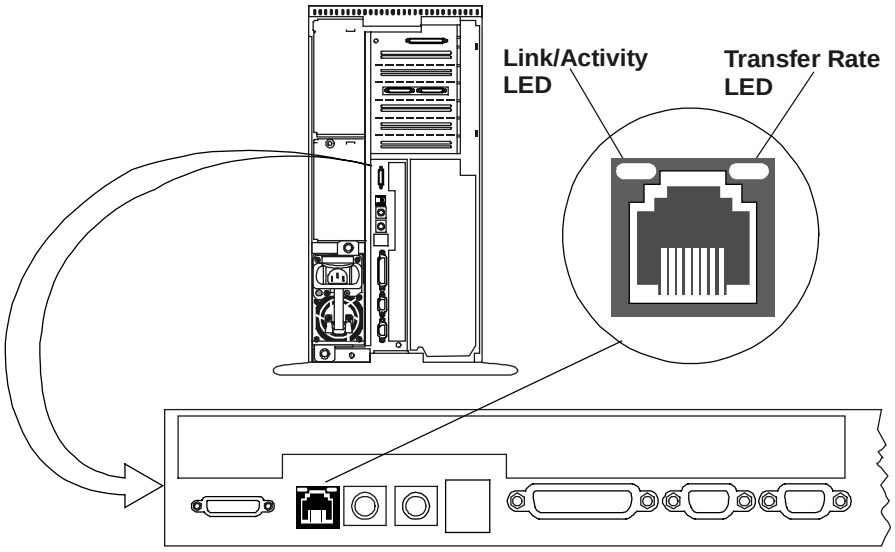


Figure 2-7. NIC LEDs

Table 2-6. NIC LED Code

Indicator	Definition
Link/Activity LED	This LED turns solid green to indicate that it is linked and properly connected. The green LED blinks to indicate the embedded NIC (network adapter) is active and transferring data to/from the NIC. The rate of blinking varies directly with network traffic.
10/100 Mbps LED	This yellow LED turns on to indicate when the NIC is supporting transfers of 100 Mbps (million bits per second). When it is off, the NIC is supporting transfers of 10 Mbps.

Applying Power to the HP NetServer

Powering Up the HP NetServer

1. Ensure the HP NetServer's power cord or power cords are connected to the power source. See Figure 2-4.
2. Press the Power button on the front control panel. See Figure 2-1 or 2-2.

NOTE	Each time AC power is applied (power cord is plugged in), there is a 15 second delay (self test) before the front control panel will respond to your actions.

Powering Down the HP NetServer

1. Log off all users and, if necessary, back-up files.
2. Follow instructions in your network operating system (NOS) documentation to gracefully shut down all networking software and applications.
3. Press the power switch on the HP NetServer's control panel when prompted by the operating system.

   Normally, this completes the shutdown procedure.

NOTE	The power supply will continue to provide standby voltage to the HP NetServer until the power cord(s) is/are disconnected.

Connecting AC Power to Multiple-Server Configurations

The HP NetServer temporarily draws a large "inrush current," when first connected to an AC power source. This also occurs when the NetServer is in a standby mode (power is turned off and the power cord is plugged into AC power). The inrush current is much greater than the NetServer's normal operating current and generally, the AC power source can handle the normal inrush current.

However, if you install several HP NetServers on one circuit, precautions are necessary. If there is a power failure and power is then restored, all the servers immediately begin to draw inrush current at the same time. If the circuit breakers on the incoming power line have insufficient capability, the breaker may trip and thus prevent the servers from powering up.

When preparing your site for installation, allow for the additional inrush current. See "Power Requirements" in Appendix A.

English

Sleep States (ACPI)

The HP NetServer supports the ACPI (Advanced Configuration and Power Interface) standard, which is a key component of a NOS's directed power management. The supported features are only available when an ACPI-compliant NOS is installed on the NetServer. The term "sleep state" refers to any of several reduced power consumption states in which normal NOS activity has ceased.

The NetServer supports several sleep states, including a sleep state with a short wake-up time, sometimes referred to as "standby" or "suspend" by various operating systems. In this sleep state the NetServer appears to be off, and is indicated by no display on the monitor and no activity for the CD-ROM or internal hard drives. However, the power LED is slowly flashing and the fans are operating.

An additional sleep state supported by the NetServer is one with a slower wake-up time, sometimes referred to as "hibernate" by various operating systems. In this sleep state, the NetServer appears to be off as mentioned earlier, but the fans and the power LED are also turned off. This sleep state's unique feature (and the reason for its slower wake-up time) is that the NetServer's state (applications running, screens open, etc.) just prior to hibernate has been saved to disk and must be restored from disk upon wake-up. This method of restoring the NetServer's operation is much faster than rebooting the NetServer, which would require running all the start-up self-tests before starting the NOS.

The NetServer supports certain types of system activity, which is used as wake-up events from these sleep states. These wake-up events can be generated from the power button, LAN activity, and scheduled events. The embedded Integrated Remote Assistant also has the capability of waking up the NetServer.

NOTE The HP NetServer's power management policies (transitions between various power states) and the user options are specific to the particular ACPI-compliant NOS installed on the NetServer. If your respective NOS is ACPI-compliant, refer to the power management features in the instructions provided for more information.

The HP NetServer's power button can be configured to initiate a sleep state (Sleep button) or a "soft off" or graceful shutdown of the NOS, rather than an immediate shutdown of the power supply. The power button configurations are dependent on the user interface provided by the ACPI-compliant NOS. While power management is under the control of the ACPI-compliant NOS, the HP NetServer's power button is capable of an override in case of a non-responsive NOS.

NOTE The HP NetServer power button will force a power down without waiting for the NOS to gracefully shut down the system if the power button is pressed and held in excess of four seconds.

CAUTION If the power button override is used, there is a strong possibility of corrupted or lost data.

3 Opening and Closing the HP NetServer

Introduction

This chapter describes how to safely extend the rack-mounted HP NetServer LC 2000r out of the rack and how to remove and replace the covers from the HP NetServer LC 2000r and the pedestal model, HP NetServer LC 2000. This chapter also describes how to remove and replace the pedestal base from the HP NetServer LC 2000.

WARNING	Before removing the covers, shut down the operating system and disconnect the power cords and unplug telephone cables. Disconnect the power cords to avoid exposure to high energy levels that may cause burns when parts are short-circuited by metal objects, such as tools or jewelry. Disconnect telephone cables to avoid exposure to a shock hazard from telephone ringing voltages.

Tools Required

- An anti-static service kit (3M™ 8501/8502/8503 or equivalent). This kit includes a static-dissipating work surface, a chassis clip lead, and a wrist strap.

Removing the HP NetServer's Covers

The HP NetServer's covers are designated top and bottom for the rack-mounted version and left and right for the pedestal version.

Removing Covers – Rack-Mount (LC 2000r)

Use this procedure to remove the bezel and then safely extend the NetServer to where you can remove the covers (top and bottom) from the HP NetServer LC 2000r.

- If you are installing hardware options, you must remove the front bezel, extend the NetServer, and remove the top cover. The hardware options include accessory boards, DIMMs, and an additional processor, which require access to the interior of the NetServer.
- If you are only installing or removing SCSI disk drives, open the bezel, but do not extend the NetServer or remove the covers. The front bezel is hinged like a door and does not require removal.
- If you are only installing the redundant power supply, you do not need to remove the bezel, extend the NetServer or remove the covers.

WARNING	To prevent injury do not operate the HP NetServer with its covers removed, or install items with the power cord connected. Always disconnect the power cord before removing any covers, to avoid exposure to high energy levels that may cause burns when parts are short-circuited by metal objects such as tools or jewelry. Disconnect any telephone cables to avoid exposure to shock hazard from telephone ringing voltages.

CAUTION	To prevent overheating, never operate the NetServer with its covers removed. This includes the power supplies and Hot Swap hard disks, which must be replaced or the opening covered immediately (within 2 minutes).

1. If the HP NetServer is operating, log off all users and, if necessary, back up files.
2. Follow instructions in your network operating system (NOS) documentation to gracefully shut down all networking software and applications.

English

3. Press the power switch on the HP NetServer's control panel when prompted by the operating system.

   Normally, this completes the power down procedure.

4. Disconnect the power cord or cords from the power source.

NOTE The power supplies will continue to provide standby current to the NetServer until the power cable is disconnected.

5. At the front of the HP NetServer, extend the anti-tip foot from under the front of the rack.

   See Chapter 8, "Rack-Mounting the HP NetServer," later in this manual.

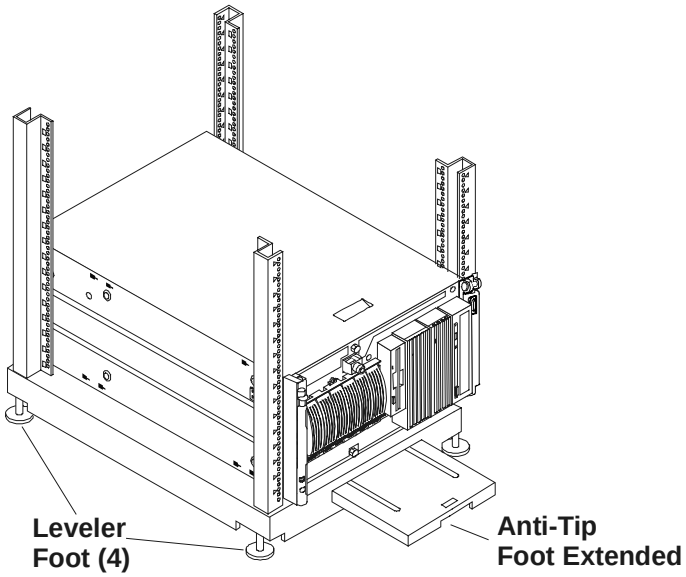


Figure 3-1. Extend the Rack's Anti-Tip Foot

WARNING This anti-tip device must be extended to prevent the rack and HP NetServer from tipping over, which could damage the NetServer and injure people.

6. Swing the bezel open to the left to access the Bezel Release Tab.
7. Press down on the blue Release Tab as shown in Figure 3-2 to release the bezel from the chassis.

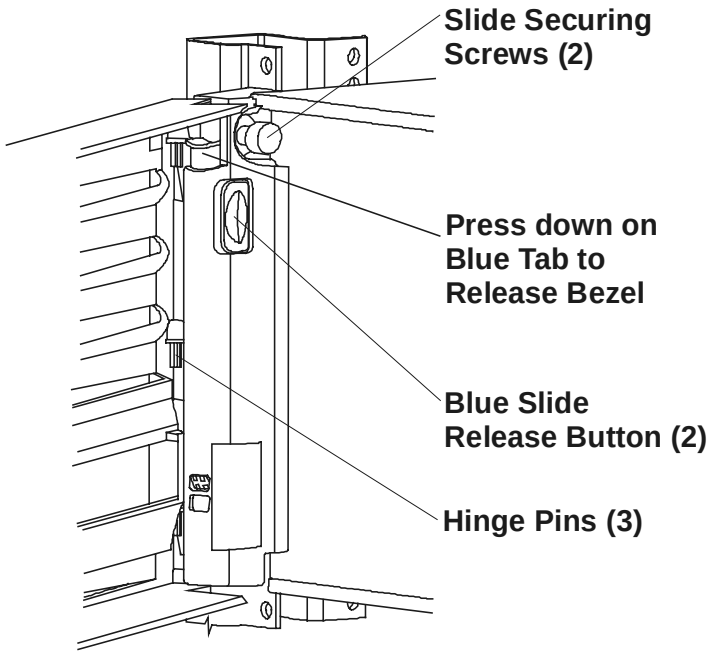


Figure 3-2. Removing the HP NetServer LC 2000r's Bezel

8. Lift the bezel away from the front of the HP NetServer.

English

9. Unscrew the slide securing screw (2) on each bracket securing the chassis to the column adapter on each side of the rack. See Figure 3-3.
10. Press in on each blue Slide Release button (2) with both hands to slide the HP NetServer out of the rack. See Figure 3-3.

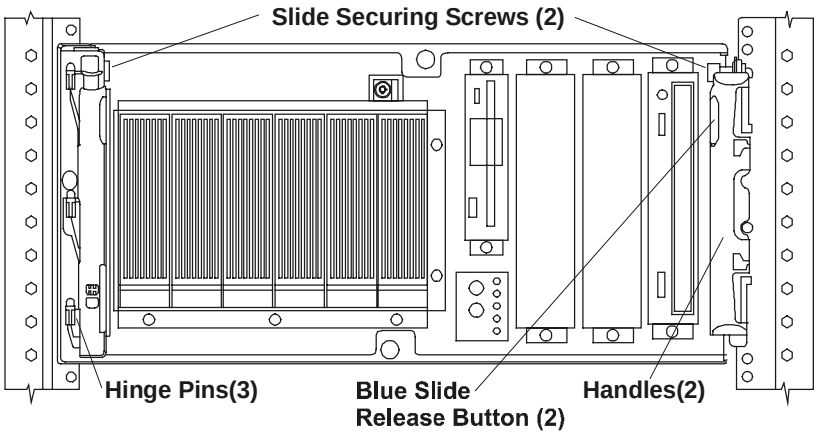


Figure 3-3. Releasing the Securing Buttons

11. Pull the NetServer out of the rack until it snaps into the safety locks in each slide with a click. See Figure 3-4.

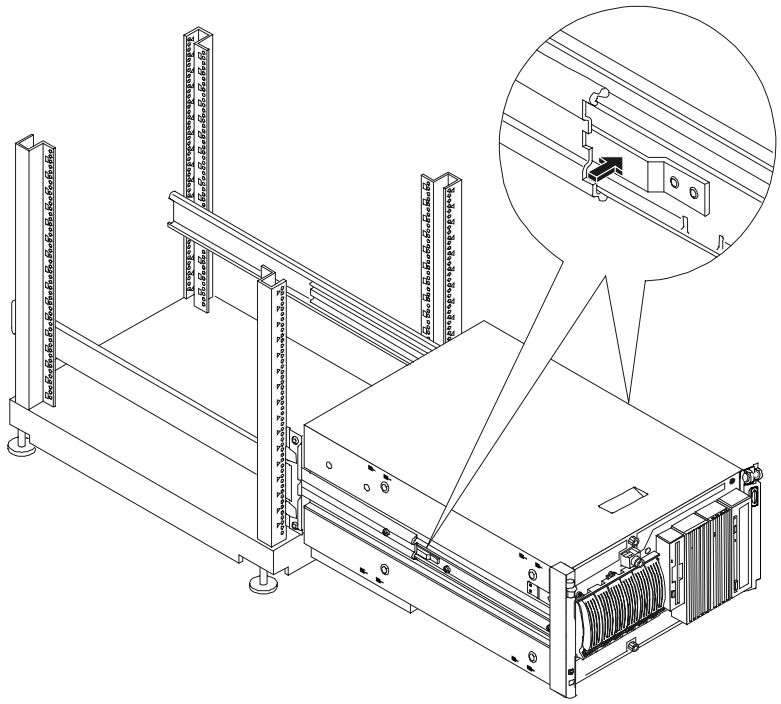


Figure 3-4. Extending the HP NetServer LC 2000r

CAUTION	To prevent damage to the covers, support the cover as you remove it from the HP NetServer. The NetServer's covers are heavy.

12. To remove the top cover, use the key provided to unlock the Mass Storage Cage and release the top cover.
13. Loosen the thumbscrew on the front of the chassis for the top cover and then pull the cover forward to disengage.
14. Lift the top cover up and away from the chassis. See Figure 3-5.

English

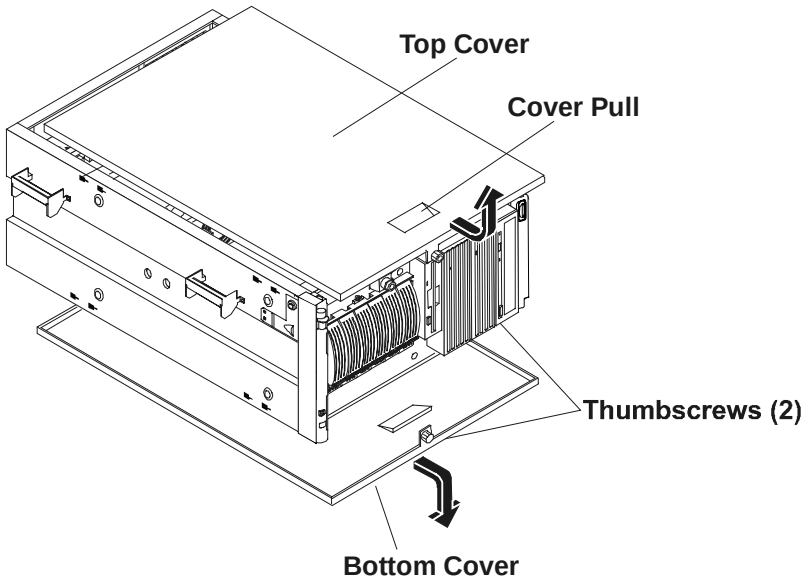


Figure 3-5. Removing HP NetServer LC 2000r Covers

15. If necessary, remove the bottom cover by loosening the thumbscrew at the front of the HP NetServer with one hand. See Figure 3-5.

    The bottom cover does not provide any additional access to the interior, except the bottom of the mass storage drives and the control panel board.

16. Support the bottom cover with your free hand, as you pull the cover forward to disengage it, catching it as it falls away from the chassis. See Figure 3-5.

17. To replace the top cover, position the cover's tabs over the respective holes along the top edge on both sides of the chassis.

18. Slide the cover toward the rear.

19. Tighten the thumbscrew at the front of the cover.

20. To replace the bottom cover, position the cover's tabs under the respective holes along the bottom edge on both sides of the chassis.

21. Slide the cover toward the rear.

22. Tighten the thumbscrew at the front of the cover.

23. Release the safety latches in the slide members on both sides of the chassis. See Figure 3-4.

24. Slide the HP NetServer into the rack.
25. To replace the front bezel, reverse the procedure by positioning the bezel over the hinge pins at the front of the HP NetServer's chassis.
26. Press the down on the Blue Bezel Release tab to engage the hinge pins of the bezel and then release it.
27. If the NetServer is not in a restricted-access area, tighten both slide securing screws. See Figures 3-2 and 3-3.
28. Return the HP NetServer to normal operation.

Removing Covers – Pedestal (LC 2000)

Use this procedure to remove the bezel and covers (left & right) on the pedestal version of the HP NetServer LC 2000.

- If you are installing hardware options, you must remove the front bezel and top cover. The hardware options include accessory boards, DIMMs, and an additional processor.
- If you are only installing hot-swap disk drive modules or a redundant power supply, you do not need to remove the bezel or the covers.

WARNING	Do not operate the HP NetServer with its covers removed. Always disconnect the power cord before removing any covers, to avoid exposure to high energy levels that may cause burns when parts are short-circuited by metal objects such as tools or jewelry. Disconnect any telephone cables to avoid exposure to shock hazard from telephone ringing voltages.

CAUTION	To prevent overheating, never operate the NetServer with its covers removed. This includes the power supplies and Hot Swap hard disks, which must be replaced or the opening covered immediately (within 2 minutes).

1. If the HP NetServer is operating, log off all users and, if necessary, back up files.
2. Follow instructions in your network operating system (NOS) documentation to gracefully shut down all networking software and applications.

English

3. Press the power switch on the HP NetServer's control panel when prompted by the operating system.

   Normally, this completes the power-down procedure.

4. Disconnect the power cord from its power source.

5. To remove the bezel, pull the top of the bezel forward until it unsnaps, then lift the entire bezel upward and away from the chassis. See Figure 3-6.

   The bezel connects to the front of the HP NetServer chassis with two snap-in connectors at the top front of the chassis and two metal tabs, which fit into two slots on the bottom front of the chassis.

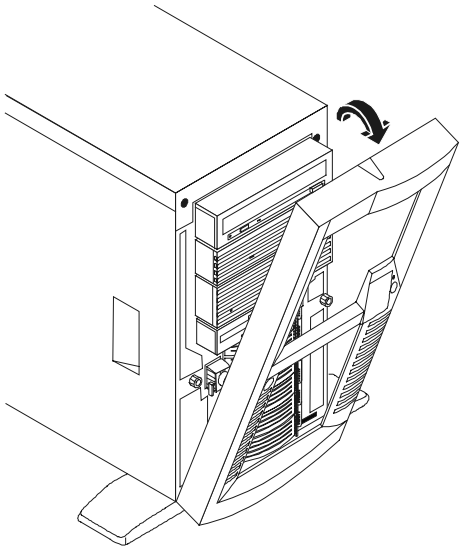


Figure 3-6. Removing the HP NetServer LC 2000 Bezel

CAUTION	To prevent damage to the covers, support the cover as you remove it from the HP NetServer. The NetServer's covers can be easily damaged.

6. To remove the left side cover, use the key provided to unlock the Mass Storage Cage and release the left side cover.
7. Loosen the thumbscrew on the front of the chassis for the left side cover and then pull the cover forward to disengage it.
8. Move it to the left and away from the chassis. See Figure 3-7.
9. If necessary, remove the right side cover by loosening its thumbscrew on the front of the chassis.

   The right cover does not provide any additional access to the interior, except the right side of the mass storage drives and the control panel board.
10. Pull the cover forward and then slightly sideways to disengage it.
11. Move it to the right and away from the chassis. See Figure 3-7.

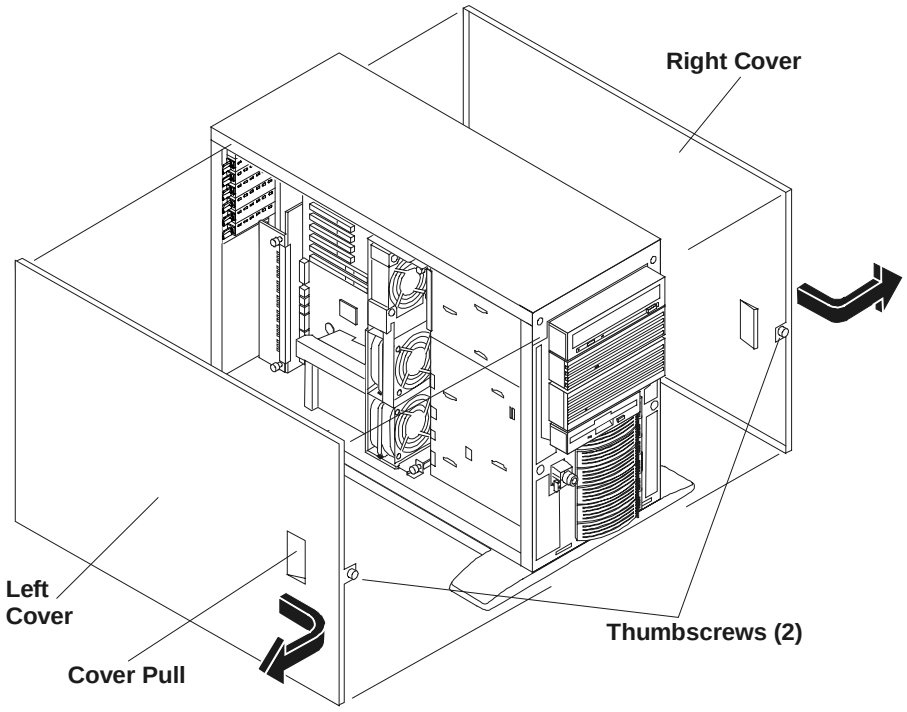


Figure 3-7. HP NetServer LC 2000 Covers

English

12. To replace the left side cover, position the cover's tabs next to the respective holes along the outer edge on the side of the chassis.
13. Slide the cover toward the rear.
14. Tighten the thumbscrew at the front of the cover.
15. To replace the right side cover, position the cover's tabs next to the respective holes along the outer edge on each side of the chassis.
16. Slide the cover toward the rear.
17. Tighten the thumbscrew at the front of the chassis.
18. To replace the bezel, insert the tabs at the bottom of the bezel into the slots on the chassis.
19. Swing the top of the bezel toward the chassis until it snaps into place. See Figure 3-8.

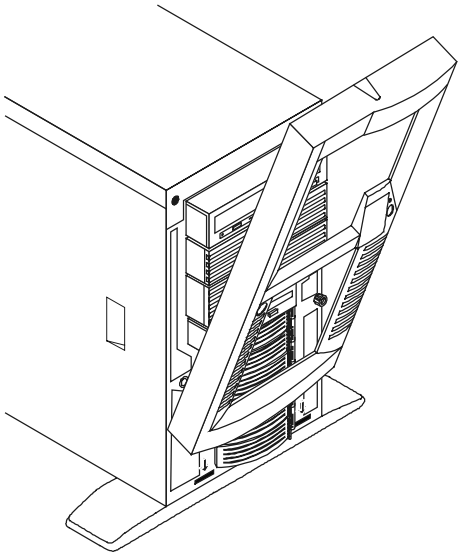


Figure 3-8. Replacing the Bezel

20. Return the HP NetServer to normal operation.

Removing the Pedestal

The pedestal version of the HP NetServer LC 2000 mounts to an anti-tip pedestal, which can be easily removed, if necessary.

1. Perform Steps 1-4 in the previous section, "Removing Covers – Pedestal (LC 2000)."

NOTE The front bezel is shown removed, but the bezel may remain on the chassis while removing the pedestal.

2. Disconnect all cables connected to the rear of the NetServer that would limit its rotation before continuing.
3. Turn the NetServer over onto its top and pull up on the two tabs as shown in Figure 3-9.

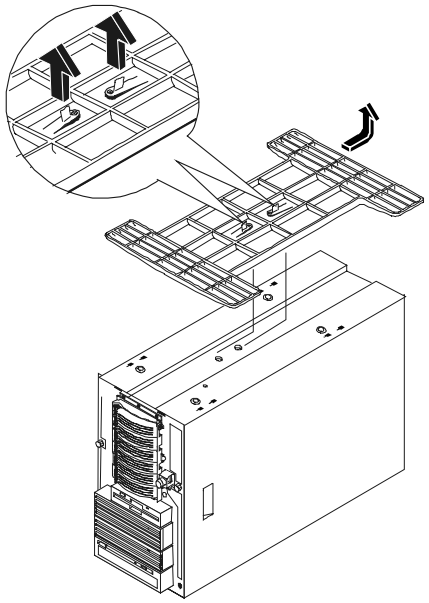


Figure 3-9. Removing the Pedestal

4. Slide the pedestal to the rear of the NetServer as shown in Figure 3-9.
5. To re-install the pedestal, repeat Steps 1-3 and slide the pedestal forward onto the NetServer.

4 Installing Mass Storage Devices

Introduction

This chapter describes how to install the internal mass storage devices, including the internal SCSI Hot Swap hard disk drives and the optional Tape Backup (DAT) Drive. The requirements for external SCSI drives are provided in the respective topic later in this chapter.

NOTE The two embedded SCSI controllers both operate as LVD (Low-Voltage Differential) controllers, but if a SE (single-ended) device is connected to the controller, it automatically switches to SE and all SCSI devices connected to the controller must operate as SE devices. A 68-pin to 50-pin SCSI adapter is provided on the terminated SCSI cable used for non-hot swap SCSI devices. If your system was not configured with a backup (DAT) tape drive, you must use the terminated non-hot swap cable for the tape drive.

Installing Storage Devices After Shipment

If you are installing mass storage devices that were not shipped with your HP NetServer, certain configurations may require additional cables or adapters not provided with your HP NetServer shipment. For part numbers of the required items, such as HP cables, adapters, trays, and configuration information, see Information Assistant on the *HP NetServer Navigator CD-ROM*.

For new products, you may use Order Assistant on the HP web site at:

`http://www.hp.com/go/netserver`

You may select "Buy HP" and choose the country and desired option that best suits your needs. You may also download the Order Assistant utility.

Tools Required

- Torx T-5 or T-10 driver (non-Hot Swap devices)
- Torx T-15 driver (non-Hot Swap devices)

Drive Bay Shelves

The non-hot swap drives include the IDE CD-ROM and the 3.5 inch flexible disk drives which are standard for all HP NetServer models (LC 2000/2000r) and ship with each unit. The two empty drive shelves beneath the CD ROM drive support other non-hot swap SCSI devices, such as hard drives (3.5-inch or 5.25-inch), tape back-up devices, or other HP-tested (LVD or SE) SCSI accessories.

The system chassis ships with a Hot Swap Mass Storage cage supporting up to six low-profile Hot Swap hard drives or three half-height Hot Swap hard drives.

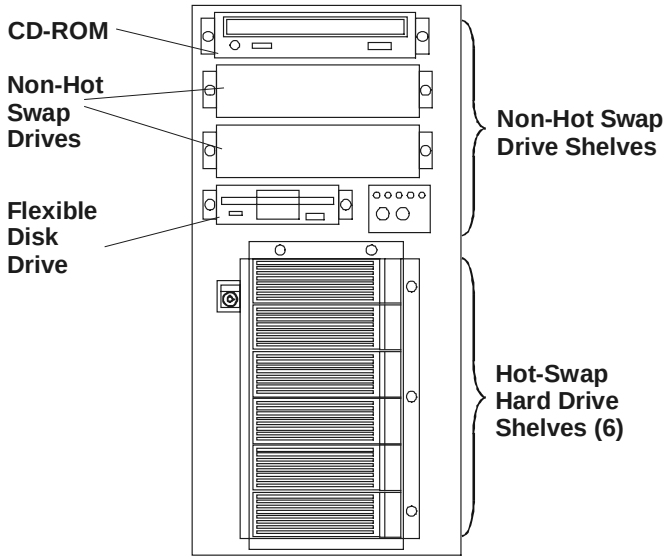


Figure 4-1. Standard Mass Storage Configuration

Boot Priority

This section details the HP NetServer's boot order by highest to lowest priority. The on-board SCSI controller has two channels, A and B. Channel A is typically used to control the Hot Swap SCSI drives. Channel B is typically used to control the internal non-hot swap SCSI drives. On each SCSI channel, the NetServer scans for a boot device starting at device ID 0 and proceeds up from there.

The HP NetServer's boot order (BIOS search order for a boot device) should be considered, when connecting cables from the on board SCSI channels. A SCSI drive's boot priority is set by the drive's location in the boot order. See Figure 4-1.

English

You can change this boot order using the Setup Utility (BIOS) and the SCSI Configuration Utility during the boot process. Refer to Chapter 10 "Configuring the HP NetServer" for more information.

By default the NetServer searches for boot devices in this order:

1. IDE CD-ROM drive
2. Flexible disk drive
3. SCSI A bus (typically Hot Swap Mass Storage Cage)
4. SCSI B bus (typically non-Hot Swap internal SCSI devices)
5. PCI Slot P1
6. PCI Slot P2
7. PCI slot P3
8. PCI slot P4
9. PCI slot P5
10. PCI slot P6

Hardware Mirroring

You may choose to mirror the drives (RAID 1) in the HP NetServer's Hot Swap Mass Storage Cage. However, doing so through software slows down disk access time, but using hardware mirroring can help speed up disk access time.

Hardware mirroring requires a dual channel SCSI controller, which allows you to use the two embedded SCSI controllers (SCSI A and B) or install an HP NetRAID (Drive Array Controller – DAC) PCI board to control the two mirrored channels. To use hardware mirroring on the SCSI Hot Swap cage you must install the optional duplex accessory board. Ensure you use a PCI DAC board with an LVD compatible interface.

CAUTION	To prevent damage to the interface or the PCI DAC board, don't use a HVD (High Voltage Differential) DAC board.

Mass Storage Guidelines

- General Guidelines
  - ◊ Use care when unpacking and handling the disk drives.

    The hard disk drives are very susceptible to mechanical shock and can be easily damaged by a drop as short as one-quarter of an inch. If the drop would crack an egg, it will damage the drive.
  - ◊ Do not stack drives.
  - ◊ Do not use high voltage differential (HVD) SCSI devices on any of the SCSI channels or damage will occur. Use only Single-Ended (SE) or Low-Voltage Differential (LVD) devices.
- SCSI Device Selection
  - ◊ Ensure the SCSI devices you install in *both* Hot Swap and non-Hot Swap-drive bays do not have terminations installed. The non-Hot Swap SCSI drives are connected to a terminated cable and the Hot Swap cage provides the termination for any unused slots in the cage.
  - ◊ Use only HP LVD SCSI 3.5-inch hard disk drives for the Hot Swap drive cage.

    You can use a combination of half-height (1.6-inch) and low-profile (1.0 inch) drives in the Hot Swap cage, but be sure to use spacers and filler panels to cover any openings. The HP Hot Swap drives come set for LVD SCSI operation and without device ID or termination. Do not change these settings.
  - ◊ Use only 3.5-inch or 5.25-inch single-ended (SE) SCSI devices for the non-Hot Swap shelves.

    The available space in the non-Hot Swap shelves supports two half-height (1.6 inch) devices. You can order HP mounting kits for removable media devices or trays for 3.5-inch hard disk drives (half-height). You may use narrow/wide SCSI adapters on these devices.

CAUTION	When installing Hot Swap drives, you must install one drive spacer with each half-height (1.6 inch) drive and ensure there are no drive gaps in the cage to provide proper ventilation.

English

- SCSI Drive Addressing

  ◊ The drives in the Hot Swap Cage are automatically assigned SCSI addresses by the HP NetServer.

  The Hot Swap drive's address is dependent on its position within the drive cage and the combination of half-height and low-profile SCSI drives installed. Refer to Figures 4-2 through 4-5 for the automatic SCSI ID assignments.

  The Hot Swap Cage also supports the installation of a Duplex board, which divides the cage in two equal halves. The only drive addresses available in this case are 0 through 2. Refer to Figures 4-4 and 4-5 for duplexed cage drive examples.

  ◊ The non-hot swap SCSI devices use SCSI IDs from 0 through 15, with the following restrictions:

  a. Narrow SCSI devices must be addressed 0 through 6.

  b. Wide SCSI devices may be addressed 0 through 15, except for ID 7, which is held by the SCSI controller.

  The non-hot swap SCSI devices are all connected to the same cable, which is terminated and connected to one SCSI controller. Each SCSI device connected to the non-hot swap device connector must have a unique address.

- SCSI Device Installation Order

  The Hot Swap Cage's supported hard drive configurations for both HP NetServer models are shown in Figures 4-2 through 4-5. The arrows indicate the order of hard drive installation.

  ◊ Start from the bottom of the Hot Swap drive cage when adding hard drives in the HP NetServer LC 2000.

  If you are using one or more filler panels, insert them at the *top* of the cage. These configurations may use filler panels and drive spacers to close up the front of the Hot Swap mass storage cage. If there are gaps in the cage, the drives may not receive the proper ventilation and could suffer thermal damage.

  ◊ Start from the left of the Hot Swap drive cage when adding hard drives in the HP NetServer LC 2000r.

  If you are using one or more filler panels, insert the panels on the *right* side of the drive cage. These configurations may use filler panels and drive spacers to close up the front of the Hot Swap mass storage cage.

If there are gaps in the cage, the drives may not receive the proper ventilation and could suffer thermal damage.

- Filler Panels and Spacers

  ◊ Ensure all empty slots in the Hot Swap drive cage have filler panels inserted to ensure proper airflow.

  If there are fewer drives than the Hot Swap drive cage supports, a 1-inch *filler panel* must be inserted in each empty disk location. The filler panels ensure the drive cage has the proper ventilation and airflow. The filler panel will be removed before inserting a new drive.

  ◊ Ensure all smaller spaces in the Hot Swap drive cage have the smaller filler panels inserted to ensure properly airflow.

  If there is a mix of 1-inch and 1.6-inch drives in the drive cage, you may need to add ½-inch drive spacers. The smaller drive spacer fills the gap between adjacent drives or between a drive and a filler panel. Disk spacers can be mounted on 1-inch low-profile drives or 1.6-inch half-height drives, so a drive spacer and low-profile drive are the same size as a half-height drive, and a drive spacer and a half-height drive are as large as two low-profile drives.

CAUTION	To prevent overheating or excessive electromagnetic radiation, use the filler panels and spacers to fill the gaps between Hot Swap hard drives. If the filler panels or spacers are left out of the drive shelves, thermal damage and/or excessive EMI could occur.

- Hot Swap Drive Cage Configurations

  The possible Hot Swap Drive Cage Configurations are summarized in Figures 4-2 through 4-5 for the HP NetServer's LC 2000r and LC 2000 respectively. There are various SCSI cable configurations associated with the system and, if incorrectly configured, could cause damage to the HP NetServer and the SCSI devices. Refer to Figures 4-6 and 4-7.

Hot Swap Configuration Options

The Hot Swap Mass Storage Cage has various configurations which affects the options installed and cable configurations. If the Duplex board is installed on the mass storage cage, the drive and cable configurations differ from those shown without the duplex board installed. Compare Figures 4-2 and 4-4 or 4-3 and 4-5.

English

Rack-Mounted Configurations for SCSI Hot Swap Mass Storage Cage Single Bus Control - SCSI Connector A

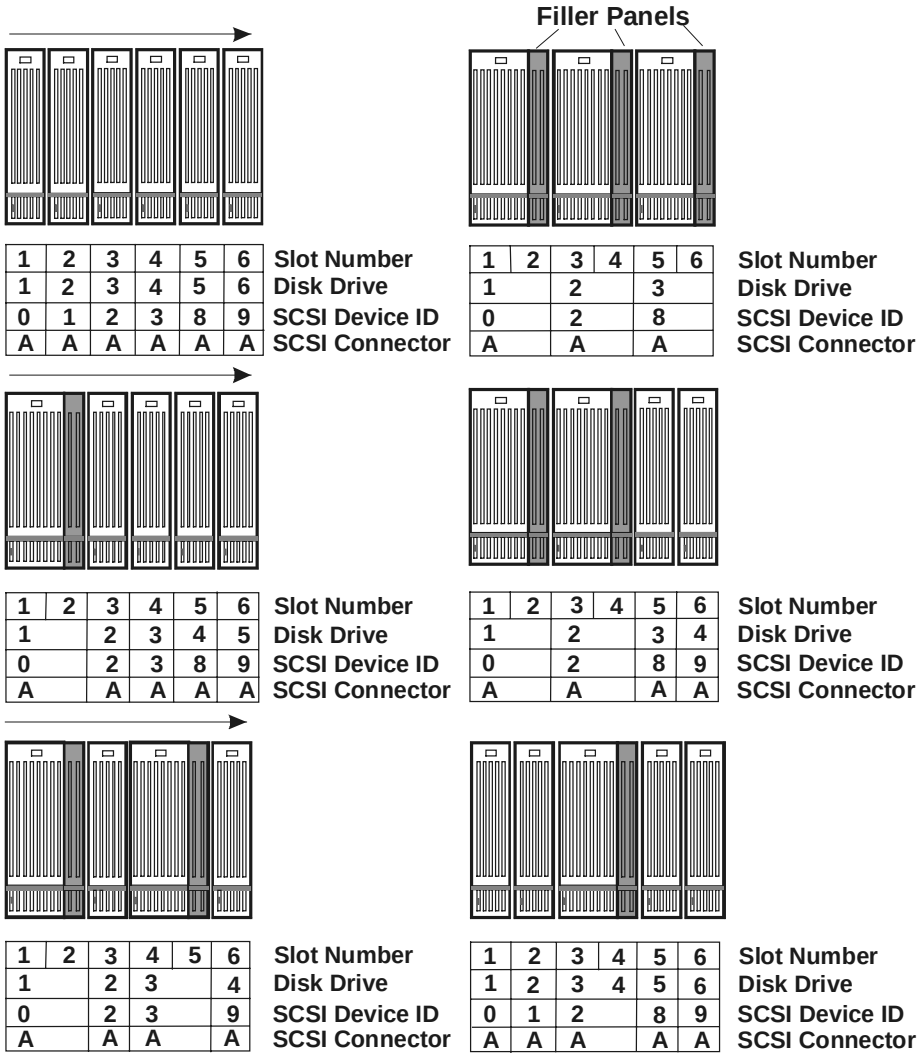


Figure 4-2. Rack Mounted Hot Swap Drive Configurations (No Duplex)

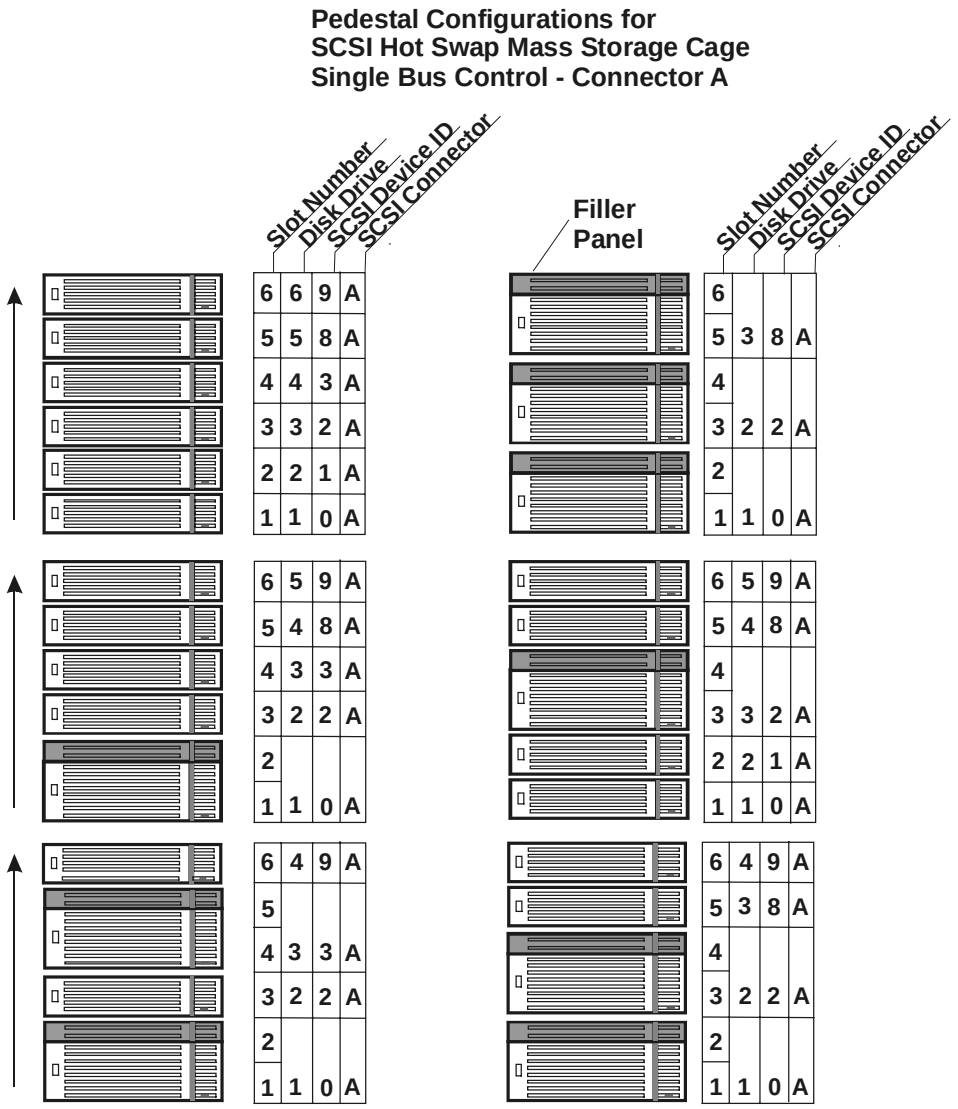


Figure 4-3. Pedestal Mounted Hot Swap Drive Configurations (No Duplex)

English

Rack-Mounted Configurations for SCSI Hot Swap Mass Storage Cage Duplex Board Installed - Two Bus Control Connector A and B

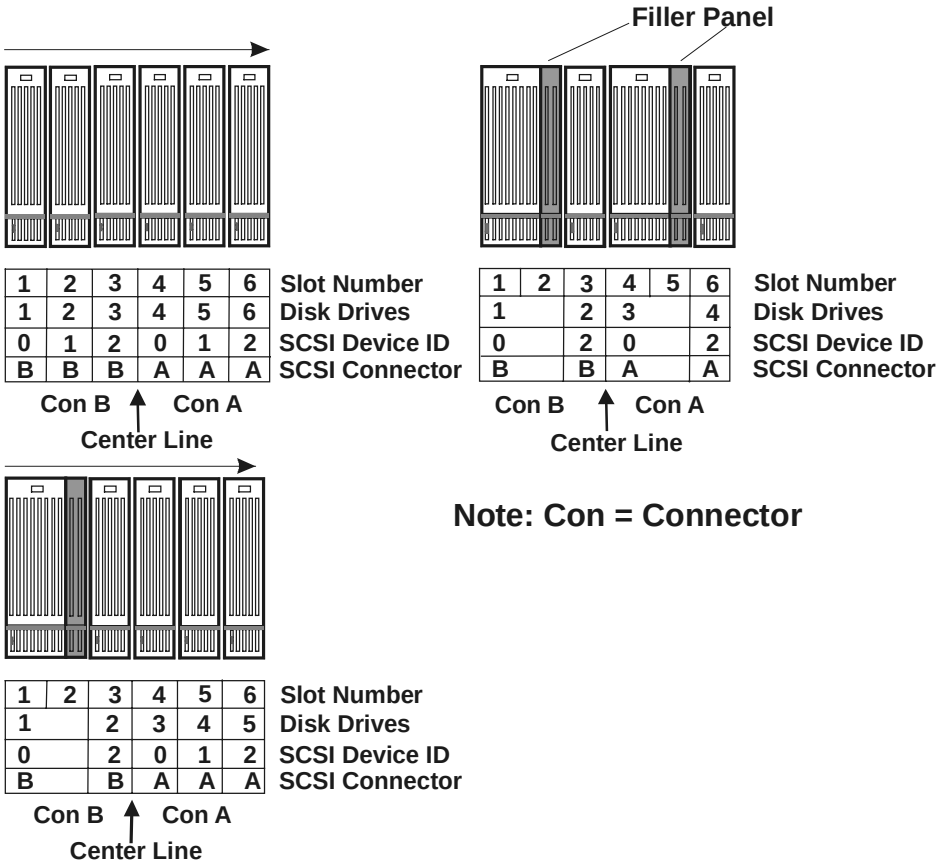

Filler Panel
1 2 3 4 5 6 Slot Number
1 2 3 4 5 6 Disk Drives
0 1 2 0 1 2 SCSI Device ID
B B B A A A SCSI Connector
Con B
Con A
Center Line
1 2 3 4 5 6 Slot Number
1 2 3 4 Disk Drives
0 2 0 2 SCSI Device ID
B B A A SCSI Connector
Con B
Con A
Center Line
Note: Con = Connector
1 2 3 4 5 6 Slot Number
1 2 3 4 5 Disk Drives
0 2 0 1 2 SCSI Device ID
B B A A A SCSI Connector
Con B
Con A
Center Line

Figure 4-4. Rack Mounted Hot Swap Drive Configurations (Duplex)

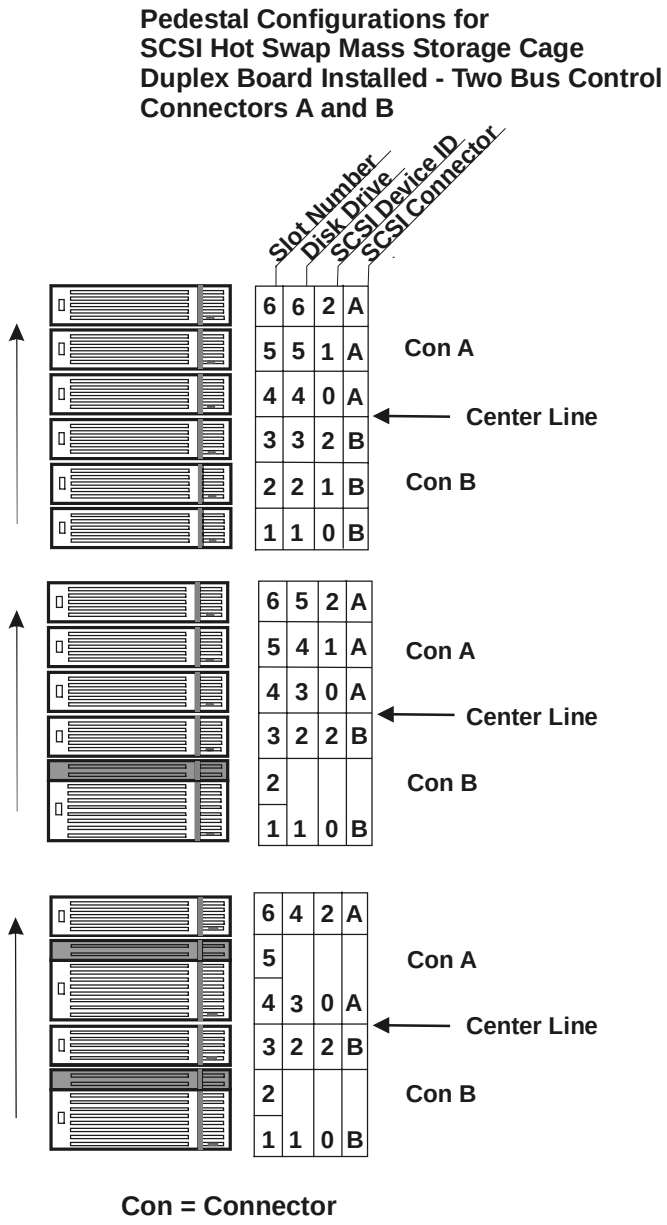


Figure 4-5. Pedestal Mounted Hot Swap Drive Configurations (Duplex)

English

Cabling Configurations

There are various SCSI cable configurations associated with the HP NetServer and if all possible SCSI devices and connections are used, then an additional SCSI disk controller is required. Table 4-1 describes the various cables and where each one can be connected. The example configurations shown in Figures 4-6 and 4-7 assume the maximum number of SCSI devices and connections.

- Do not connect the SCSI terminated cable (# 3) to the Hot Swap Mass Storage Cage's connector A or B, or unreliable operation will occur.
- The Hot Swap Mass Storage Cage can have up to six drives with only one SCSI cable connected.
- The Hot Swap Mass Storage Cage can also be split into two equal parts, with up to three drives each (requires duplex board accessory kit), and uses two independent SCSI busses, which require two SCSI cables.

  If the duplex board is installed, the two embedded SCSI controllers, a dual channel SCSI disk controller board, or a DAC board must be used to control the two halves of the Hot Swap Mass Storage Cage.

Table 4-1. Internal Cable Designations

Cable Designation	Description	Source
Cable 1	This cable always connects to the Flexible disk drive in the system.	This cable can only connect to the floppy connector on the system board.
Cable 2	This cable always connects to the Mass Storage Cage and has no termination.	This cable is typically connected to the embedded SCSI A channel, a SCSI disk controller board, or a HP NetRAID (DAC) board.
Cable 3	This cable always connects to the non-hot swap SCSI drives and has a termination at the end.	This cable can be connected to the embedded SCSI A or B channel, but is typically connected to SCSI Channel B.
Cable 4	This cable always connects to the IDE devices (CD-ROM) in the HP NetServer.	This cable can only connect to the embedded IDE connector on the system board.
Cable 5	This sheathed ribbon cable (optional) is always used for the external connector.	This cable can be connected to an embedded SCSI channel or a SCSI disk controller board.

SCSI Cable Configurations
Hot-Swap and Non-Hot Swap Drives
(Single Bus Control - No Duplex Board Installed)

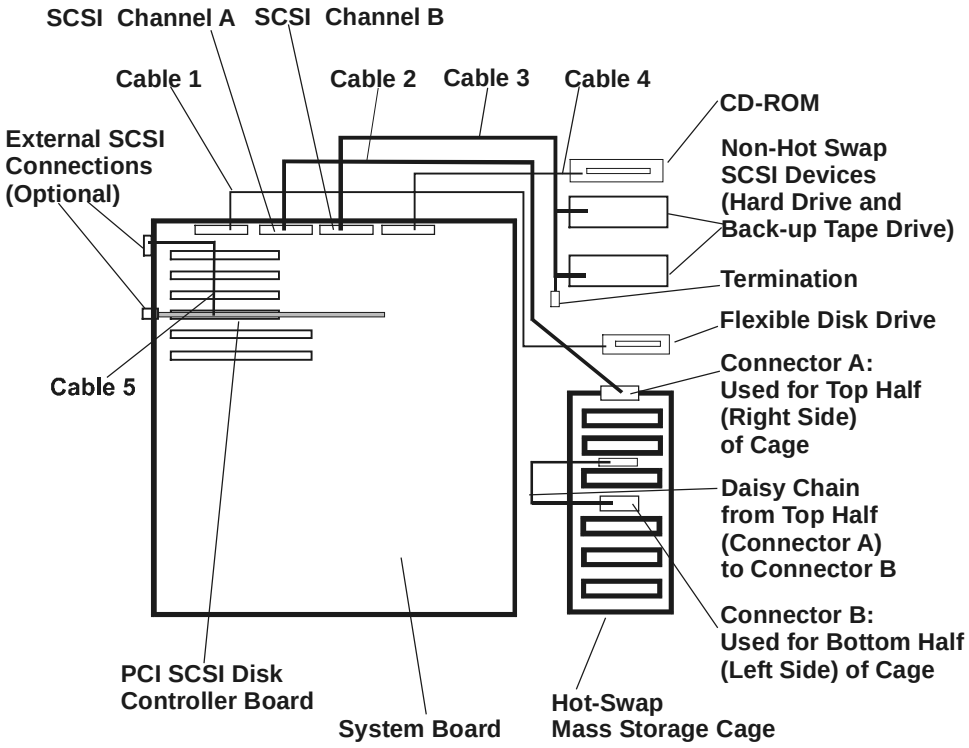

SCSI Channel A
SCSI Channel B
Cable 1
Cable 2
Cable 3
Cable 4
CD-ROM
External SCSI Connections (Optional)
Non-Hot Swap SCSI Devices (Hard Drive and Back-up Tape Drive)
Termination
Flexible Disk Drive
Cable 5
Connector A: Used for Top Half (Right Side) of Cage
Daisy Chain from Top Half (Connector A) to Connector B
Connector B: Used for Bottom Half (Left Side) of Cage
PCI SCSI Disk Controller Board
System Board
Hot-Swap Mass Storage Cage

Figure 4-6. SCSI Cable Configurations (No Duplex)

English

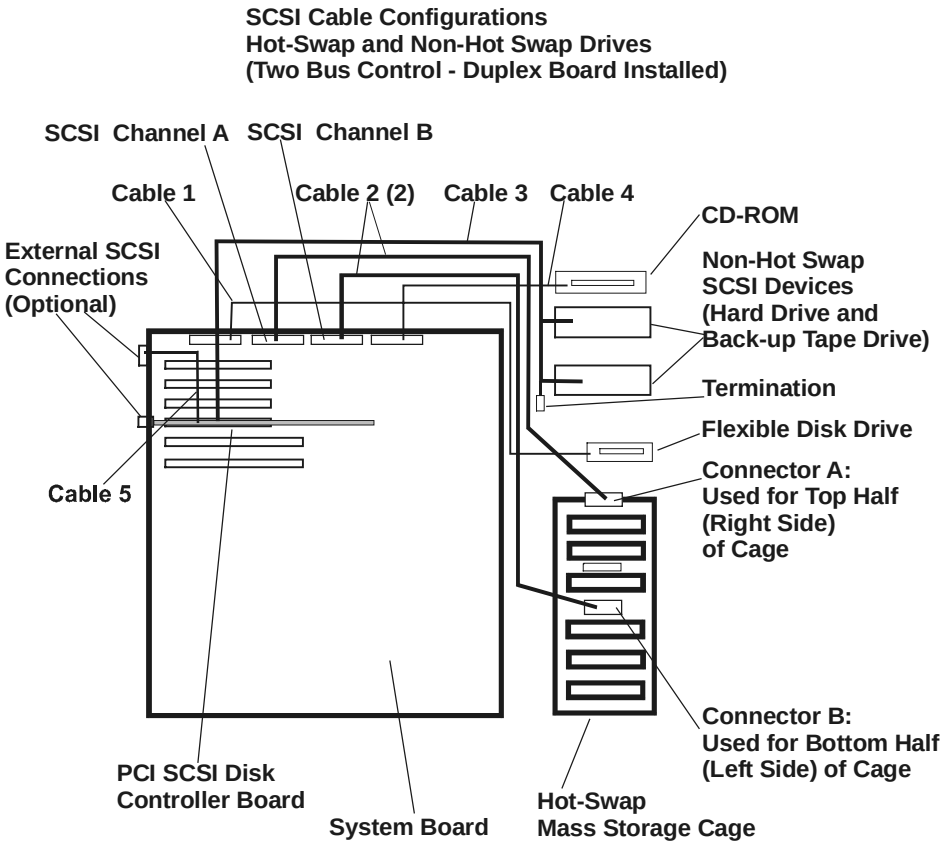


Figure 4-7. SCSI Cable Configurations (Duplex)

Installing Hot Swap Hard Drives

Use this section to install Hot Swap hard drives in the Hot Swap drive cage.

CAUTION	Protect the drive from static electricity by leaving it in its anti-static bag until you are ready to install it. Before handling the drive, touch any unpainted metal surface to discharge static electricity. When you remove the drive from the anti-static bag, handle it only by the frame. *Do not touch* the electrical components. Place the drive on the anti-static bag whenever you set it down.

1. Unlock the Hot Swap Mass Storage Cage with the key provided before attempting to remove the drive spacer or filler panels.
2. Remove any filler panels in the desired disk drive location:
   a. Press in the locking latch and insert your fingers.
   b. Using your fingers, pull the filler plug straight out. See Figure 4-8.

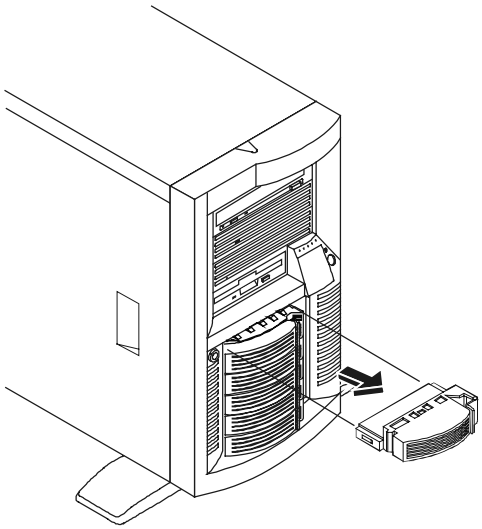


Figure 4-8. Removing Filler Panel from Cage

English

3. Remove any drive spacers, if necessary:

   a. Slide the drive spacer back, a fraction of an inch away from your body as you face the front of the drive.

      Drive spacers attach to the disk drive module with four small feet.

   b. Tilt up the front of the drive spacer to disengage the front two feet.

   c. Pull the drive spacer forward slightly to disengage the back two feet and lift. See Figure 4-9.

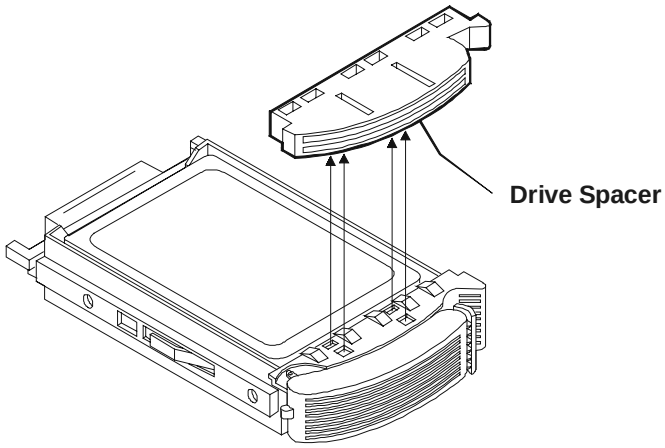


Figure 4-9. Removing the Drive Spacer

CAUTION	To prevent snapping off the handle do not use extreme force when opening it. Open the handle until you feel resistance.

4. Open the drive module by pressing in on the locking latch at the end of the drive ejector handle and pulling the handle open.

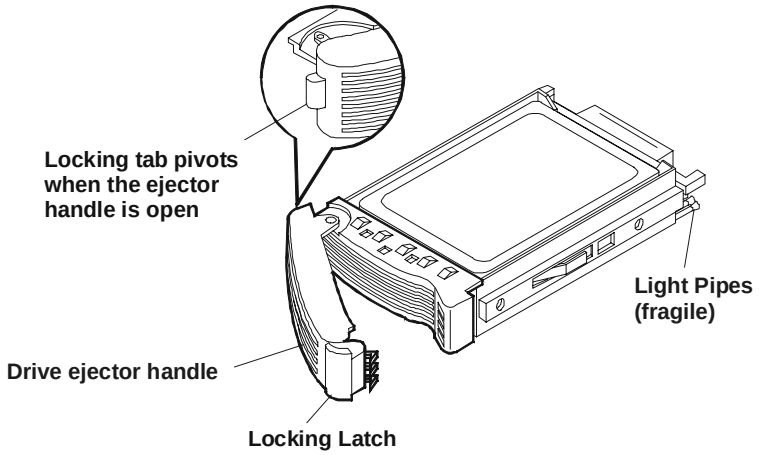


Figure 4-10. Readying Drive for Installation

English

CAUTION	Use caution when handling the drive to prevent damage to the fragile light pipes as you insert the drive.

5. Gently slide the drive module into the cage and stop when you feel resistance. See Figure 4-11.

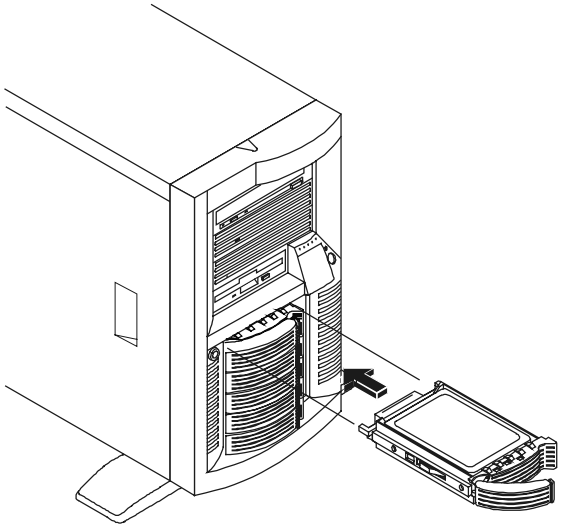


Figure 4-11. Inserting the Drive

6. Verify the pin behind the pivot end of the handle engages the hole in the edge of the cage.
7. Press the ejector handle in until you feel the latch click into place.

   Closing the ejector handle engages the drive with the electrical connector in the Hot Swap drive cage and seats the drive.
8. If the drive is unseated in the cage after closing the ejector handle, repeat this procedure from Steps 4 to 7.

   The handle was probably not pulled out far enough, and the locking latch failed to engage the Hot Swap mass storage cage.

NOTE	Closing the ejector handle engages the drive with the electrical connector in the Hot Swap mass storage cage and seats the drive.

Removing Hot Swap Hard Drives

CAUTION	*You must remove the drive slowly to ensure the drive heads are parked prior to removal.* Ensure you follow these instructions carefully to prevent handling damage, such as head slaps or head actuator unlocking.

1. To unlock the drive, push the locking latch in and then pull the ejector handle toward you. See Figures 4-10 and 4-12.
2. Gently pull the drive out about an inch to disengage the power connection.
3. Wait about 30 seconds for the drive to stop spinning and the drive heads to park.
4. Use your hand to support the bottom of the drive, while you slowly pull the drive straight out.

   Do not allow the drive to fall.
5. Place the drive in an electrostatic-protected container.

   Do not stack drives.

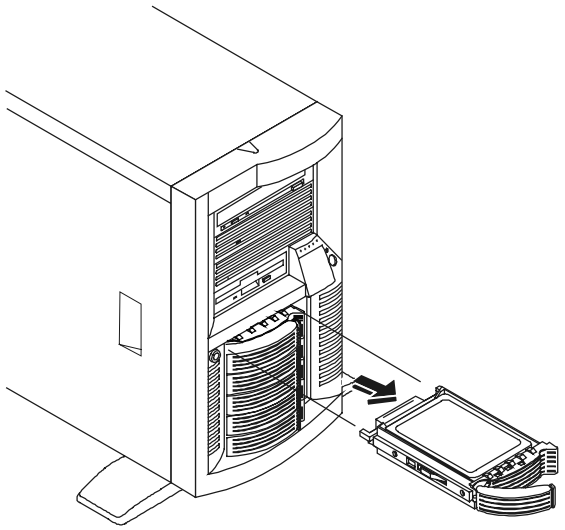


Figure 4-12. Hot Swap Drive

English

Installing Non-Hot Swap Storage Devices

Use this section to install any of the non-hot swap mass storage devices used as a hard drive or a tape backup storage.

CAUTION	Protect the drive from static electricity by leaving it in its anti-static bag until you are ready to install it. Before handling the drive, touch any unpainted metal surface to discharge static electricity. When you remove the drive from the anti-static bag, handle it only by the frame. *Do not touch* the electrical components. Place the drive on the anti-static bag whenever you set it down.

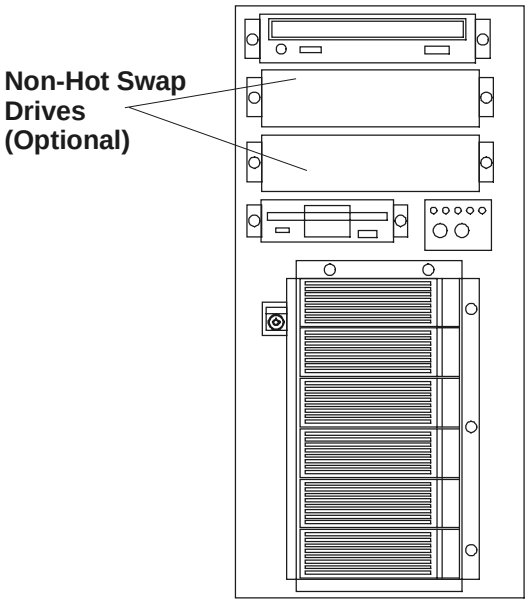


Figure 4-13. Non-Hot Swap Drive Shelves

To install a drive in the non-hot swap drive bay, refer to the following procedure.

1. If necessary, shutdown the HP NetServer's NOS.

   Refer to Chapter 2, "Controls, Ports, and Indicators."

2. Disconnect all telephone cables and power cords.

3. If working on a pedestal-mounted NetServer, remove the bezel and gain access to the HP NetServer's non-hot swap-drive bays.

   Refer to Chapter 3, "Opening and Closing the HP NetServer."

4. If working on a rack-mounted NetServer, follow the appropriate instructions to safely extend the NetServer from the rack.

   Refer to Chapter 3, "Opening and Closing the HP NetServer."

5. Select an available drive bay for the device and remove the filler panel.
6. Configure the device according to the manufacturer's instructions.

   Refer to SCSI addressing in the "Mass Storage Guidelines" section earlier in this chapter.

7. If you are installing a boot device, check the boot priority described earlier in this chapter.
8. If the device does not already have a storage tray or mounting hardware, install the appropriate mounting hardware on the device.

   Refer to the directions included with the device's mounting hardware.

9. Slide the drive into the open shelf and secure the drive using the two mounting screws included with the mounting hardware or filler panel.
10. Connect the power cable and the appropriate data cable (SCSI) from the system board or SCSI controller to the device.
11. Replace the cover.

    Refer to Chapter 3, "Opening and Closing the HP NetServer."

12. If the NetServer is rack mounted, slide it back into the rack and secure it.

    Refer to Chapter 3, "Opening and Closing the HP NetServer."

13. Replace the bezel.

    Refer to Chapter 3, "Opening and Closing the HP NetServer."

14. Return power to the NetServer and run the Setup Utility to configure the device.

English

Connecting External SCSI Devices

The HP NetServer may provide an external SCSI connector (optional) at the rear panel knockout as shown in Figure 4-14. The external SCSI connector is typically connected to a PCI SCSI disk controller board inserted in one of the PCI slots.

An external SCSI connection may also be provided by a SCSI disk controller board or a DAC board inserted into one of the PCI slots as shown in Figure 4-14. The last device in the SCSI chain of external devices must be terminated. See Figure 4-14.

CAUTION	Do not use high voltage differential (HVD) SCSI devices on any of the SCSI channels or damage will occur. The HVD SCSI devices are not supported. Use only Single-Ended (SE) or Low-Voltage Differential (LVD) devices to connect to the external connectors.

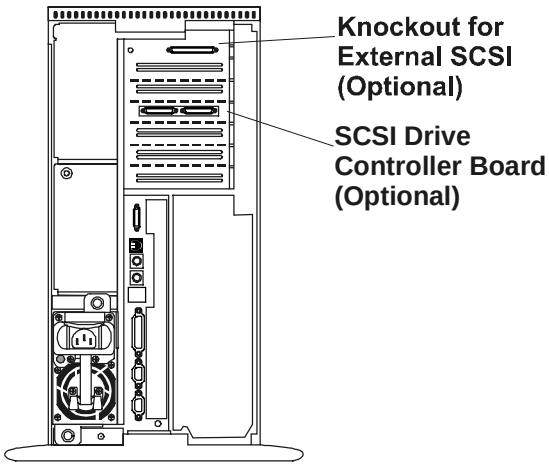


Figure 4-14. External SCSI Connection

5 Installing Additional Memory

Introduction

This chapter provides the instructions for installing and removing DIMMs on the system board in the HP NetServer LC 2000 or LC 2000r. The video memory comes with 2MB standard and cannot be upgraded.

NOTE	The EDO DIMMs and PC 100 SDRAM DIMMs from earlier HP NetServer models will fit into the DIMM slots in the NetServer LC 2000/LC 2000r, but the EDO DIMMs and PC 100 SDRAM will not function properly. Use only 133 MHz SDRAM DIMMs acquired from HP.

To ensure you have the correct DIMMs before installation, refer to one of the following for a list of qualified DIMMs:

- Technical Reference Label inside the HP NetServer's top or side cover
- HP Order Assistant on the HP web site at: **`http://www.hp.com/go/netserver`**
- Information Assistant on the *HP NetServer Online Documentation CD-ROM*
- HP Customer Service

Tools Required

- An anti-static service kit (3M™ 8501/8502/8503 or equivalent). This kit includes a static-dissipating work surface, a chassis clip lead, and a wrist strap.

Memory Installation Guidelines

- The HP NetServer LC 2000/2000r uses only 133 MHz (PC133) SDRAM DIMMs, which are electrically different from the EDO and PC100 SDRAM memory modules used in previous HP NetServer models.
- DIMM sizes supported are 64 MB, 128 MB, 256 MB, 512 MB, or 1 GB in any combination.
- Supported memory capacity ranges from 64 MB to 4 GB maximum (1 GB per DIMM slot and 4 DIMM slots total). The minimum capacity is 64 MB (one DIMM).
- DIMM sizes may be mixed on the system board and may be loaded in any order (0 through 3).
- Open slots between DIMMs are permitted.
- When handling DIMMs, observe anti-static precautions to avoid damage.

DIMM Installation

Use this procedure to install each DIMM in a DIMM slot on the system board.

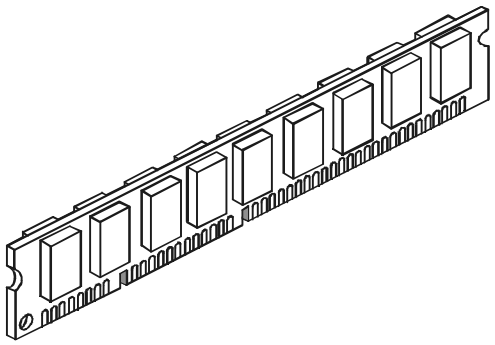


Figure 5-1. Individual SDRAM DIMM

CAUTION	Do not install EDO DIMMs or PC100 SDRAM from previous HP NetServers in the HP NetServer LC 2000/2000r. Use only DIMMs specified for the HP NetServer LC 2000/2000r.

English

To install additional memory in the HP NetServer, refer to the following procedure.

1. To gain access to the HP NetServer, perform one of the procedures listed below.

NOTE	It is not necessary to remove the system board from the HP NetServer to install the additional DIMM memory.

   ◊ If the NetServer is mounted on the pedestal, perform Steps 1-8 in the "Removing Covers – Pedestal (LC 2000)" in Chapter 3, "Opening and Closing the HP NetServer," to gain access to the NetServer.

   ◊ If the NetServer is in the rack, perform steps 1-14 in the "Removing Covers – Rack Mount (LC 2000r)" in Chapter 3, "Opening and Closing the HP NetServer," to gain access to the NetServer.

2. Locate the DIMM slot for installation and spread the two retaining clips outward to accept the DIMM. See Figure 5-2.

3. Remove the HP DIMM from its container, handling the module by its edges.

   If you must lay it down, place it on an anti-static mat.

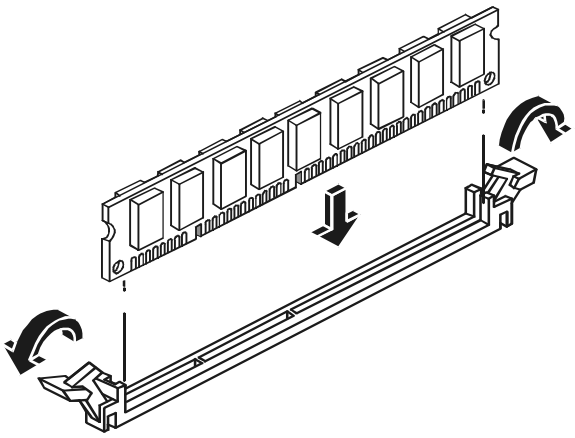


Figure 5-2. Opening Retaining Clips

4. Align the notches on the DIMM with the keys on the DIMM slot, holding the DIMM at a 90° angle to the system board. See Figures 5-2 and 5-3.

5. Insert the DIMM fully into the slot, handling the DIMM by its edges. See Figures 5-2 and 5-3.

   The retaining clips should grasp the DIMM automatically if it is inserted properly. If the clips do not close, the DIMM is not inserted correctly.

CAUTION	Do not rock the DIMM into place, but apply firm and even pressure. If the retaining clips do not close, remove the DIMM and repeat Steps 2-5.

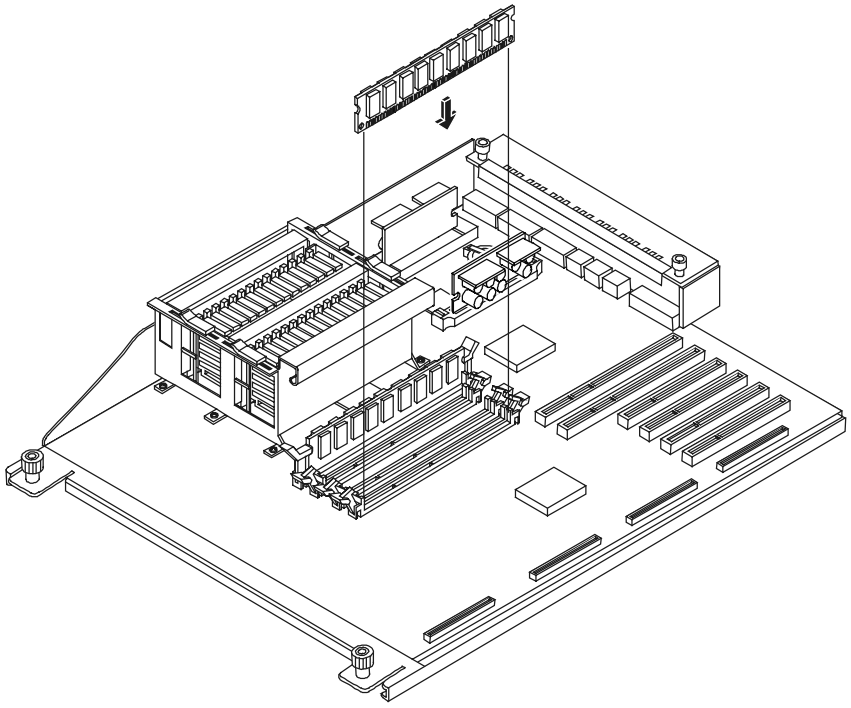


Figure 5-3. Installing the DIMM

NOTE	The Processor Cage Cover is shown removed for clarity.

6. If all DIMMs have been installed, replace the cover.

   Refer to Chapter 3, "Opening and Closing the HP NetServer."

7. If the NetServer is in a rack installation, return the chassis into the rack.

   Refer to Chapter 3, "Opening and Closing the HP NetServer."

8. Re-install the bezel onto the front of the HP NetServer.

   Refer to Chapter 3, "Opening and Closing the HP NetServer."

9. Reconnect the power cord(s).
10. Power on the HP NetServer according to the respective NOS power-up instructions.

    Refer to Chapter 2, "Controls, Ports, and Indicators."

11. Return the HP NetServer to normal operation.

DIMM Removal

Use this procedure to remove DIMMs from the HP NetServer's system board. The HP NetServer must be powered down and the appropriate cover must be removed from the HP NetServer before removing any DIMMs.

1. If you have not already removed the appropriate cover from the HP NetServer, perform one of the procedures listed below.

   ◊ If the NetServer is mounted on the pedestal, perform Steps 1-8 in the "Removing Covers – Pedestal (LC 2000)" in Chapter 3, "Opening and Closing the HP NetServer," to gain access to the NetServer.

   ◊ If the NetServer is in the rack, perform steps 1-14 in the "Removing Covers – Rack Mount (LC 2000r)" in Chapter 3, "Opening and Closing the HP NetServer," to gain access to the NetServer.

2. Select the desired DIMM(s) to remove.
3. Open the DIMM's retaining clips to lift the DIMM's top edge away from the clips. See Figure 5-4.
4. Lift the DIMM completely away from the slot. See Figure 5-4.
5. Place the DIMM in its anti-static container.

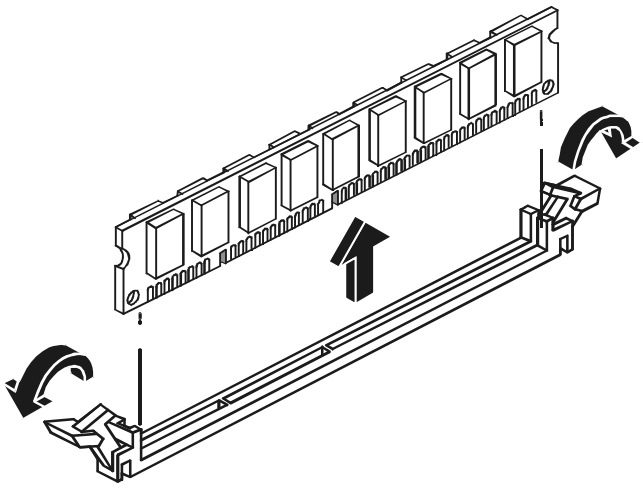


Figure 5-4. Removing a DIMM Module

6. Repeat Steps 2 through 5 to remove any additional desired DIMMs on the system board.

NOTE Ensure the retaining clips on the DIMM slots for each DIMM are closed before replacing the cover onto the HP NetServer.

An error will be displayed if all DIMMs are removed.

7. If all desired DIMMs have been removed, replace the cover.

   Refer to Chapter 3, "Opening and Closing the HP NetServer."

8. If the NetServer is a rack installation, return the chassis into the rack.

   Refer to Chapter 3, "Opening and Closing the HP NetServer."

9. Re-install the bezel onto the front of the HP NetServer.

   Refer to Chapter 3, "Opening and Closing the HP NetServer."

10. Reconnect the power cord(s).

11. Power on the HP NetServer according to the respective NOS power-up instructions.

    Refer to Chapter 2, "Controls, Ports, and Indicators."

12. Return the HP NetServer to normal operation.

6 Installing Additional Boards

Introduction

This chapter describes how to install accessory boards into the system board of the HP NetServer LC 2000/2000r. The system board provides up to six PCI slots (P1 through P6), two of which are 64-bit slots.

Tested PCI Boards

For a list of tested PCI boards, check for compatibility in Configuration Assistant on the Navigator CD-ROM or look for the Hardware Tested Products list for the HP NetServer LC 2000/2000r under the Service and Support topic for the specific NOS used in the NetServer at HP's web site:

`http://www.hp.com/netserver/support/compatibility`

CAUTION	Some accessory board outputs may exceed U.S. National Electrical code (NFPA 70) Class 2 or limited power source limits and must use appropriate interconnecting cabling in accordance with the National Electrical Code. (All Hewlett-Packard boards comply with Class 2.)

Tools Required

The following tools are required for installation or removal of the accessories boards in the HP NetServer LC 2000/2000r:

- An anti-static service kit (3M™ 8501/8502/8503 or equivalent). This kit includes a static-dissipating work surface, a chassis clip lead, and a wrist strap with ground lead.

Remote Control Card

The HP NetServer LC 2000/2000r may use the *HP TopTools Remote Control* card in any PCI slot on the system board. The Remote Control card supports HP TopTools software. An I^2C connector is provided on the system board. For more information on use of the HP TopTools Remote Control function, see Chapter 11, "Information Assistant," and Chapter 10, "Configuring the HP NetServer."

Boot Priority

This section details the HP NetServer's boot order by highest to lowest priority. The NetServer's boot order (BIOS search order for a boot drive) should be considered when selecting a slot on the system board. This is especially important if you are installing a SCSI disk controller board. The disk controller's boot priority is set by the board's slot location. See Figure 6-1.

The on-board SCSI consists of two channels, A and B. Channel A is typically used to control the Hot Swap SCSI drives. Channel B is typically used to control the internal non-hot swap SCSI drives. On each SCSI channel, the system scans for a boot device starting at device ID 0 and works up from there.

By default the NetServer searches for boot devices in this order:

1. IDE CD-ROM drive
2. Flexible disk drive
3. SCSI A bus (typically the Hot Swap Mass Storage Cage)
4. SCSI B bus (typically the non-Hot Swap internal SCSI devices)
5. PCI slot P1
6. PCI slot P2
7. PCI slot P3
8. PCI slot P4
9. PCI slot P5
10. PCI slot P6

NOTE The NetServer can be configured to boot from a PCI accessory board or PCI-based DAC, instead of the onboard SCSI channels, by putting the board in one of the PCI slots. The SCSI Configuration Utility can be used to configure the NetServer to skip over the onboard SCSI channels and select a PCI slot instead, when scanning for boot devices. For instructions, refer to the SCSI Configuration Utility in Chapter 10, "Configuring the HP NetServer."

English

IRQ Settings

The IRQ settings are automatically assigned and don't require user intervention. PCI boards have the capability of sharing hardware interrupts (IRQs) with other PCI boards, as stated in the PCI specifications, but this does not always prove to be true between board manufacturers. To solve this problem requires an in-depth knowledge of a server's implementation to place a PCI board in a slot that would not conflict with another PCI board's IRQ setting.

The HP NetServer provides various ways to automatically share interrupts in the NetServer. The sharing mode can be selected under the heading "Sharing Algorithms" in the Setup Utility. The IRQs are automatically assigned during boot up for each PCI slot and embedded device in the NetServer, avoiding any IRQ conflicts and providing the best performance. This feature also provides a way of manually assigning IRQs when disabling the Sharing Algorithm feature. Refer to Chapter 10, "Configuring the HP NetServer," for more information.

These IRQ assignments trigger the installed NOS to enable the APIC (Advanced Programmable Interrupt Controller) which takes control of the IRQ sharing scheme. You are not required to manually assign interrupts for the following NOSs:

- Microsoft's NT 4.0
- Novell's NetWare 5
- SCO UnixWare 7

NOTE	SCO UnixWare 7 requires installation of the OSMP module to enable the APIC mode.

System Board PCI Slots

All accessory boards plug into the six slots on system board at the rear of the NetServer's chassis. See Figure 6-1.

- Four PCI slots (P1-P4) support full length 32-bit boards at a clock rate of 33 MHz. These slots only support +5 VDC power and Universal boards. These slots have keys in the upper half of the board slot to prevent 3.3 volt boards from being inserted into the slots.

NOTE	Universal boards automatically switch to accept power from a +5.0 or +3.3 VDC source and have a key slot in the connector to allow installation in any of the 6 PCI slots.

- Two PCI slots (P5-P6) support full-length 32- or 64-bit boards at clock rates of 33 MHz. These slots only support +5 VDC power and Universal boards. These slots have keys in the upper half of the board slot to prevent 3.3 volt boards from being inserted into the slots.

CAUTION	Some accessory board outputs may exceed U.S. National Electrical code (NFPA 70) Class 2 or limited power source limits and must use appropriate interconnect cabling in accordance with the National Electrical Code.

- I/O connections – The system board provides connections to support the video monitor, mouse, keyboard, one serial port, one management port, one parallel port, and an embedded NIC port.

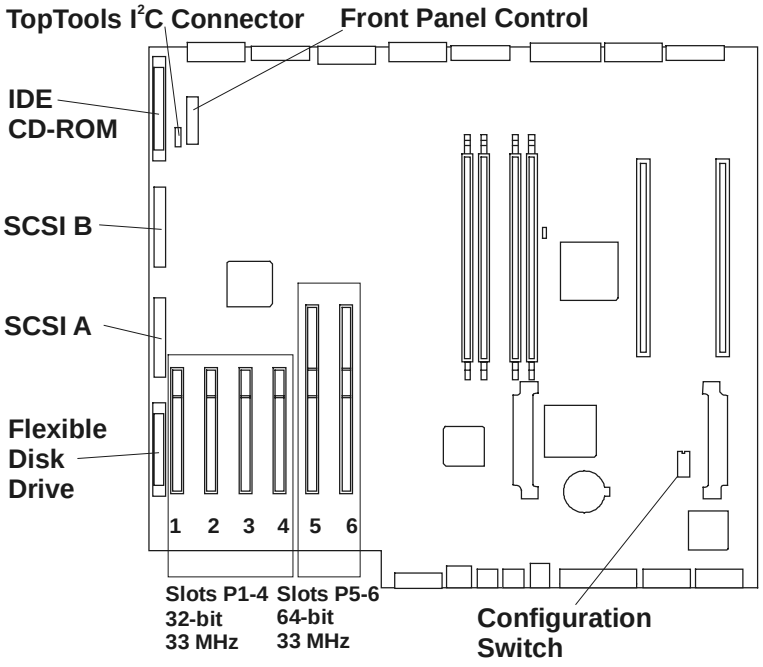


Figure 6-1. System Board PCI Slots

English

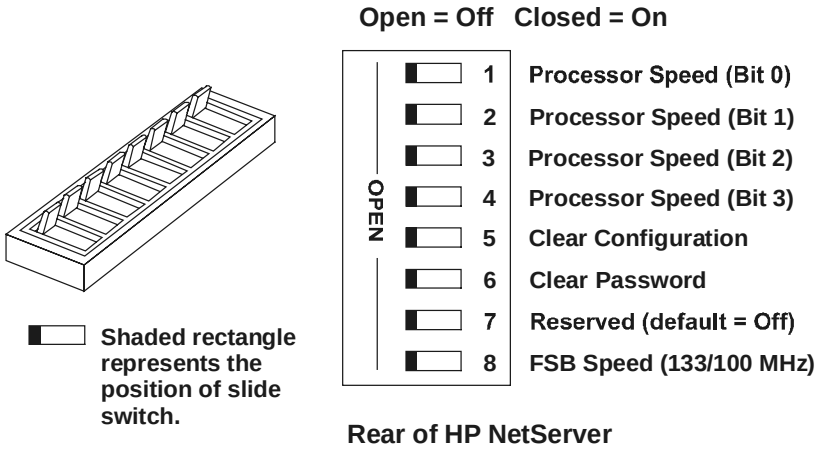

Open = Off Closed = On
OPEN
1 Processor Speed (Bit 0)
2 Processor Speed (Bit 1)
3 Processor Speed (Bit 2)
4 Processor Speed (Bit 3)
5 Clear Configuration
6 Clear Password
7 Reserved (default = Off)
8 FSB Speed (133/100 MHz)
Shaded rectangle represents the position of slide switch.
Rear of HP NetServer

Figure 6-2. Configuration Switch Block

Installing Accessory Boards

Use this procedure to install all accessory boards.

1. Read the documentation included with each board and follow any special instructions provided.

CAUTION	To prevent a system crash, never remove or insert a PCI board from or into a slot with the NetServer powered on. Always turn power off to the NetServer before performing any installation or removal operations.

2. Log off all users and back-up all files.
3. Follow the instructions in the respective NOS (network operating system) documentation to gracefully shut down all networking software and applications.
4. Press the power button on the HP NetServer's control panel when prompted by the operating system.

   Normally, this completes the shutdown procedure.

NOTE	The power supplies will continue to provide standby current to the NetServer until the power cable is disconnected.

5. Gain access to the NetServer by performing the appropriate procedure for the NetServer LC 2000 or the LC 2000r.
   - ◊ If the NetServer is mounted on the pedestal, perform Steps 1-8 in the "Removing Covers – Pedestal (LC 2000)" in Chapter 3, "Opening and Closing the HP NetServer," to gain access to the NetServer.
   - ◊ If the NetServer is in the rack, perform steps 1-14 in the "Removing Covers – Rack Mount (LC 2000r)" in Chapter 3, "Opening and Closing the HP NetServer," to gain access to the NetServer.
6. Consider the boot priority before installing any accessory boards. See Figure 6-1.

   If installing a SCSI disk controller board, the controller's priority (BIOS search order for a boot drive) is set by the board's slot location. For details, refer to Boot Priority earlier in this chapter.
7. Identify the desired slot (P1 through P6), before installing the accessory board. See Figure 6-1.

English

8. Remove the slot cover from the NetServer's rear panel, before installing the new board into the slot, as shown in Figure 6-3.

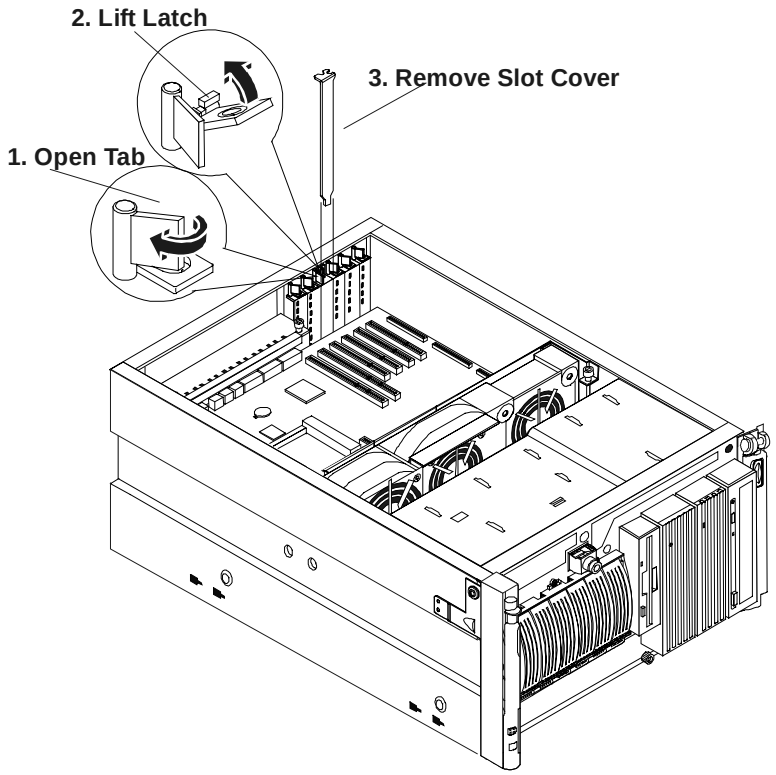


Figure 6-3. Removing the Slot Cover

NOTE	Each PCI slot must have a slot cover or PCI board in the slot. Ensure all unused slots have slot covers in place.

CAUTION	Do not bend the PCI board to install it into the slot. If a full-length PCI board has a handle on the end of the board that prevents its installation, remove the handle before installing the board.

9. Before installing the new PCI board:
   - ◊ Verify there is no handle attached to it, especially if it is a full-length board.
   - ◊ If it has a handle attached, remove the handle before installing the board into the slot.

NOTE	Use only the right side of the two slots in the board guide, when installing PCI boards into some of the PCI slots (P3 through P6) on the system board.

10. Align the board with its slot along its full length and position it into the slot.
11. Push the PCI board down into its connector in the System board.

English

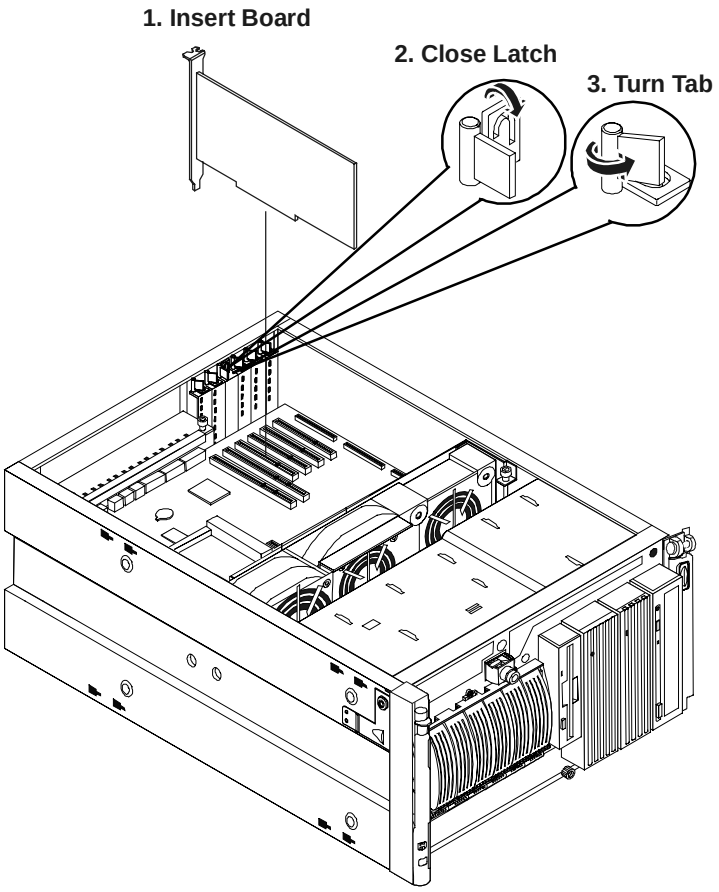


Figure 6-4. Installing the Accessory Board

12. Secure the PCI board as shown in Figure 6-4.
13. If the installed accessory board requires an external connection or a connection to the System board, ensure the cable is properly attached.

    Refer to the accessory board documentation for connection requirements.
14. If accessory board installation is complete, re-install the cover on the NetServer.

    Refer to Chapter 3, "Opening and Closing the HP NetServer."
15. Re-install the bezel onto the front of the HP NetServer.

    Refer to Chapter 3, "Opening and Closing the HP NetServer."

16. If all installation work is complete, return power to the NetServer according to the respective NOS power up instructions.
17. Use the respective NOS software to ensure the correct software drivers for the PCI board are loaded and verify correct operation.

7 Installing Additional Processors

Introduction

The HP NetServer LC 2000/2000r supports two processors in primary and secondary slots and both processors must operate at the same speed and cache size.

The HP NetServer supports the Pentium III processors at a front side bus (FSB) speed of 133 MHz. Advanced processors will be supported as each one becomes available. Contact HP or your reseller for details.

The NetServer ships with one processor in the primary processor slot and one voltage regulator module (VRM) installed its respective VRM slot. Both processors and VRM slots are located on the system board.

Tools Required

- An anti-static service kit (3M™ 8501/8502/8503 or equivalent). This kit includes a static-dissipating work surface, a chassis clip lead, and a wrist strap.

Processor Configuration Guidelines

The HP NetServer LC 2000/2000r supports a variety of processor speeds with an FSB speed of 133 MHz.

CAUTION	Do not open the new processor's protective bag or remove it from the bag until you are ready to install it. Before you remove a processor from the anti-static container, touch a grounded, unpainted metal surface on the HP NetServer to discharge static electricity.

- Both processor modules must be the same processor type and have the same product number, which insures the same clock speed, cache size, and FSB speed.
- The processor modules must operate at the designated speed stated by the product type on the processor.

CAUTION	Do not set the processor speed switches to any other speed, as this can result in unreliable or intermittent performance, and data integrity may also be at risk.

- Use only processor upgrade kits with the same HP product number. This ensures the processor type, clock speed, and cache size match, and that product numbers are compatible.
- Ensure you install the processor module and its respective VRM in the secondary slot, if the primary processor is already installed.

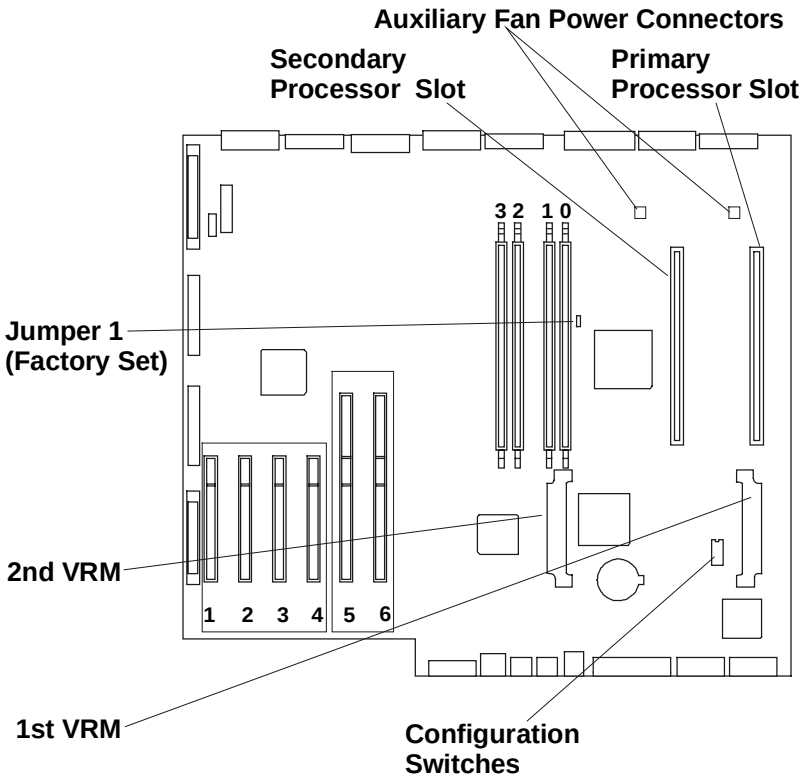


Figure 7-1. System Board

English

Installing the Processor

The installation procedure is the same for the rack-mounted models as for the pedestal models of the NetServer once you gain access to the system board.

CAUTION	Use an anti-static wrist strap and a grounding mat. Wear a wrist-strap and use a static-dissipating work surface connected to the chassis when handling components. Ensure the metal of the wrist strap contacts your skin.

1. Unpack the processor shipping box and check the contents against its packing list.

CAUTION	Do not remove the processor from its bag until you are ready to install it and ensure the bag remains sealed until then.

2. Gracefully shut down the network operating system according to directions in your NOS documentation.
3. Press the power switch on the HP NetServer's control panel when prompted by the operating system.

   Normally, this completes the shutdown procedure.
4. Disconnect the power cord or power cords.

WARNING	Power supplies will continue to provide standby current to the NetServer until the power cables are disconnected.

5. To gain access to the system board, follow the appropriate instructions for removing the cover.

   ◊ If the NetServer is mounted on the pedestal, perform Steps 1-8 in the "Removing Covers – Pedestal (LC 2000)" in Chapter 3, "Opening and Closing the HP NetServer," to gain access to the NetServer.

NOTE	It is not necessary to remove the system board from the NetServer to install the new processor module or the VRM.

   ◊ If the NetServer is in the rack, perform steps 1-14 in the "Removing Covers – Rack Mount (LC 2000r)" in Chapter 3, "Opening and Closing the HP NetServer," to gain access to the NetServer.

6. Verify the processor speed and FSB setting, before installing the second processor module. See Figures 7-1 and 7-2, and Tables 7-1 and 7-2.

   Both processor modules must have the same clock speed, cache size, FSB speed, and product number.

7. If installing two new processor modules, set the switches accordingly.

   Use a small, flat-blade screwdriver or similar tool.

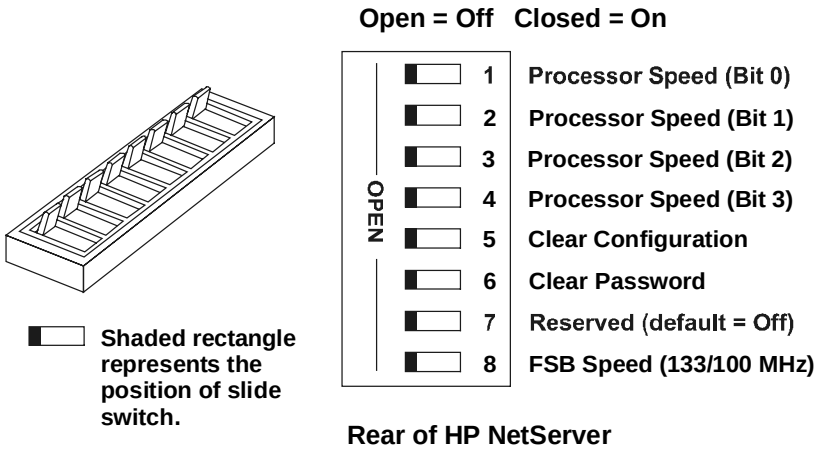

Open = Off Closed = On
OPEN
1 Processor Speed (Bit 0)
2 Processor Speed (Bit 1)
3 Processor Speed (Bit 2)
4 Processor Speed (Bit 3)
5 Clear Configuration
6 Clear Password
7 Reserved (default = Off)
8 FSB Speed (133/100 MHz)
Shaded rectangle represents the position of slide switch.
Rear of HP NetServer

Figure 7-2. System Switch and Settings

Table 7-1. Configuration Switch Settings

FSB Switch Setting		Processor Speed Settings			
SW8 – Off (133 MHz Bus)	(Multiple of FSB)	SW1	SW2	SW3	SW4
533 MHz	4.0X	ON	OFF	ON	ON
600 MHz	4.5X	ON	OFF	ON	OFF
667 MHz	5.0X	ON	OFF	OFF	ON
733 MHz	5.5X	ON	OFF	OFF	OFF

English

NOTE Some processor speeds listed in Table 7-1 may not be supported. For the latest support information, visit the HP web site:

`http://www.hp.com/go/netserver`

NOTE The System board is shown removed from the HP NetServer for simplicity in the following figures, but it is not necessary to remove the system board to install the new processor module or the VRM.

8. Loosen the thumbscrew on the processor cage cover, and lift off the cover as shown in Figure 7-3.

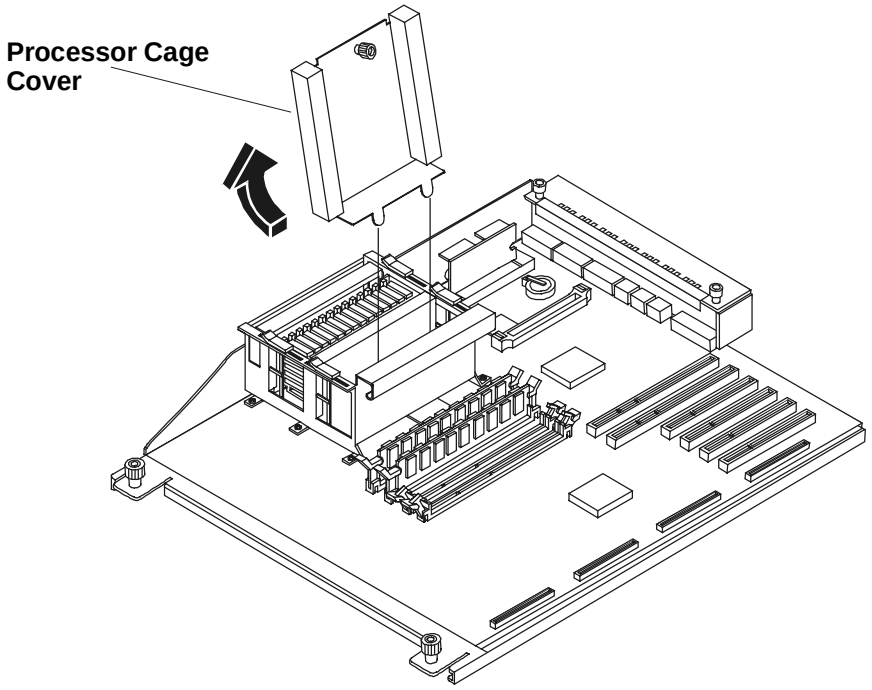


Figure 7-3. Removing Processor Cage Cover

9. Remove the termination from the secondary processor slot by pressing in on the tabs and pulling directly upwards. See Figure 7-4.

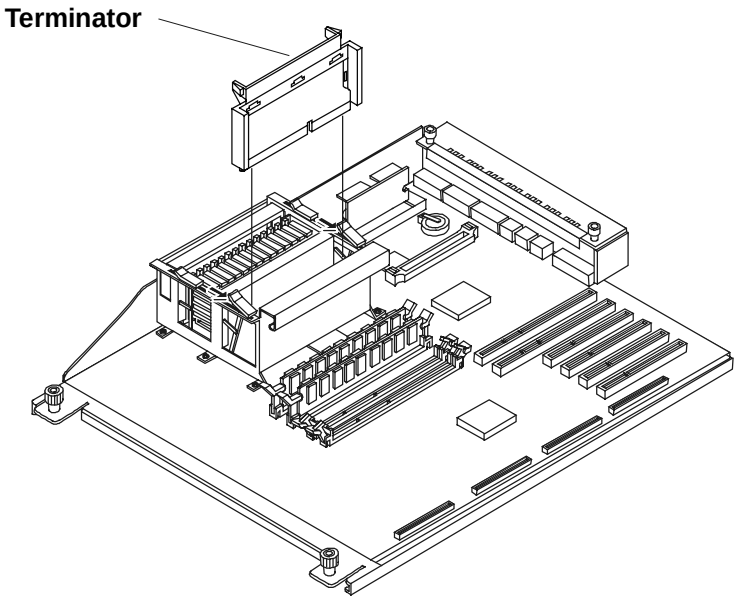


Figure 7-4. Remove Terminator Board

English

10. Remove the processor module from the sealed bag.
11. Open the latches on top of the processor slot. See Figure 7-5.

    If a processor is installed in the slot, the processor module will move up in the slot where you can grasp it for removal.

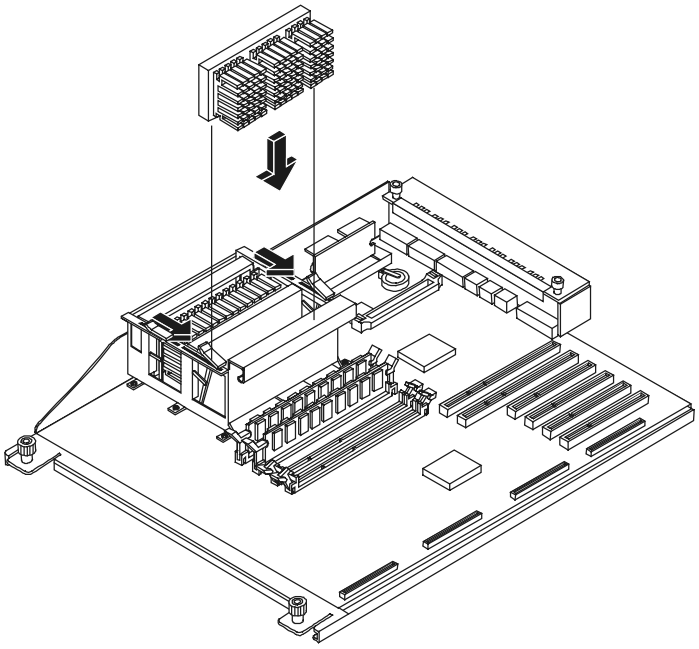


Figure 7-5. Installing the Processor

12. Align the additional processor module over the secondary processor module slot. See Figure 7-5.
13. Gently push down on the processor module until it seats.
14. Slide the retaining latches closed to completely seat the processor module firmly in the connector. See Figure 7-6.

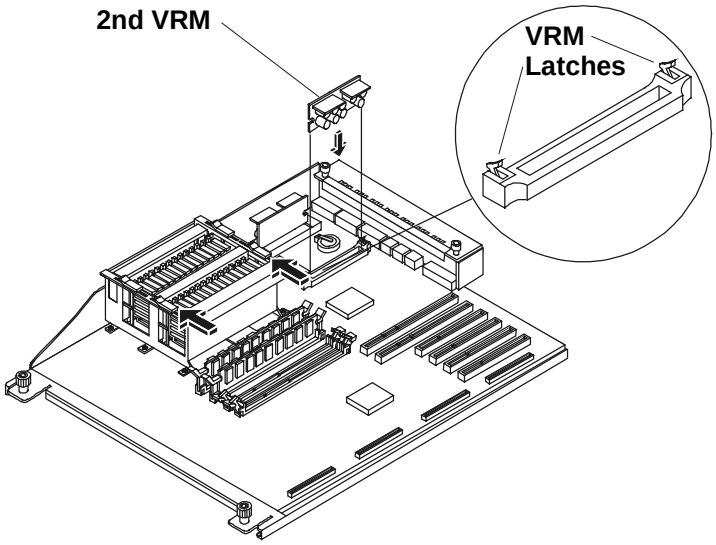


Figure 7-6. Installing VRM

CAUTION	To prevent damage to the VRM, do not push on the large flat surface or touch the components on the board as you push the VRM card down into the slot. Push only on the edges of the VRM board.

15. Open the VRM retaining latches as shown in Figure 7-6.
16. Align the VRM's connector edge with the secondary VRM slot. See Figure 7-6.

    The VRM's component side should face towards the center of the enclosure, which is just the opposite of the primary VRM already installed.
17. Gently push as you insert the VRM into the socket. See Figure 7-6.
18. Re-install the cover on the processor cage by reversing Step 8.
19. Re-install the cover and bezel onto the NetServer according to the appropriate procedure.

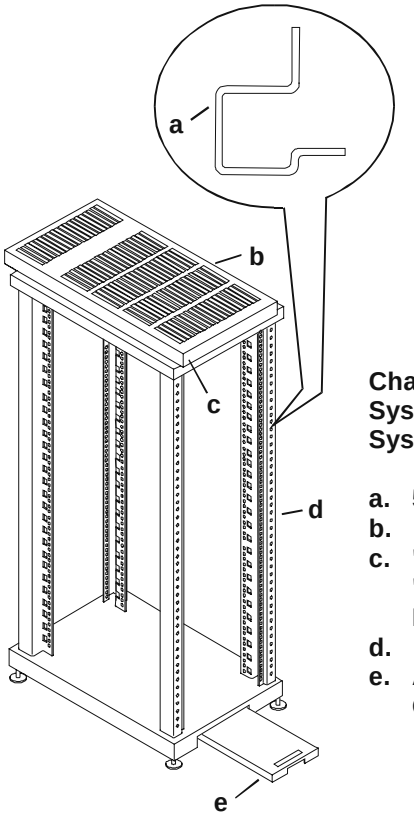
    Refer to Chapter 3, "Opening and Closing the HP NetServer," for instructions.
20. Return power to the NetServer and restore normal operation.

English

8 Rack Mounting the HP NetServer

Introduction

This chapter tells how to mount the HP NetServer in an HP System/E or System/U rack. The illustration below shows the characteristics of the System/E and System/U racks. If you have the older HP Systems rack, see Chapter 13, "Alternative Rack Mounting," for instructions. (If you are mounting the NetServer in a non-HP rack, refer to the separate rack-mounting guide for third-party racks. It is packed in the accessories tray in the HP NetServer's shipping box.)



Characteristics of System/E and System/U Racks:

a. 5-Cornered Columns
b. Full Panel Vent
c. "HP Rack System/E" or "HP Rack System/U" Name Plate
d. Numbered EIA Units
e. Anti-Tip Foot Extends Out Front or Back

Figure 8-1. HP System/E and System/U Rack Features

NOTE If you want to put your NetServer into a third-party rack not mentioned in the guide, you may be able to find relevant documentation on HP's web site at the following URL:

`http://www.hp.com/netserver/support`

The HP NetServer rack mount kit requires five EIA units of space in the rack. Before mounting the NetServer, plan the NetServer's location in the rack relative to other rack components. Proper placement is vital both for safety and operating efficiency. For more details, see the *HP Rack Installation Road Map* and the *HP NetServer LC 2000r Rack Cabling Reference Guide*.

NOTE If the HP NetServer is completely configured by the vendor before delivery to the customer, then mounting the HP NetServer in the rack may be the final step in the installation procedure. If the vendor configures the HP NetServer at the customer's site, installation of the network operating system and other software may occur after the HP NetServer is mounted in the rack.

WARNING The HP NetServer weighs 80 lbs. (36 kg) fully loaded. To prevent an accident, use two people when placing the NetServer into the rack.

CAUTION If other rack components are to be mounted in the rack below the HP NetServer, install those components before starting to mount the NetServer.

Tools Required

To assemble the rack mount kit and install the HP NetServer on it, you need these tools.

- T-15 and T-25 Torx Drivers
- Number 2 Phillips screwdriver
- Marking pen

English

Safety Precautions

Always keep the following safety and environmental issues in mind, especially if you install the HP NetServer in a non-HP rack environment:

- **Optimum Operating Environment** – The optimum operating conditions for the HP NetServer is in an environmental controlled computer room with a temperature range of 20 to 22°C (68 to 72°F) at 40 to 60% relative humidity.
- **Maximum Ambient Temperature -** Ensure the maximum ambient temperature does not exceed 35°C (95° F).
- **Elevated Operating Ambient Temperature -** The ambient operating temperature within a closed or multi-unit rack assembly is likely to exceed the room's ambient temperature. Ensure the temperature within the rack itself does not exceed 35°C (95°F).
- **Reduced Air Flow -** As you mount equipment in the rack, ensure you allow enough air flow for safe operation of the equipment. The NetServer's fans will only operate correctly if both front and rear doors of the rack allow free air flow (perforated openings), or are removed.
- **Mechanical Loading -** Uneven mechanical loading within the rack can cause hazardous conditions. To prevent this in your installation plans, place the heaviest components in the bottom of the rack, mounting all components as low in the rack as is practical.
- **Circuit Overloading -** Ensure the total configuration of equipment in the rack does not overload the supply circuit. To this end, check the nameplate ratings on all equipment. Consider the effect of circuit overloading on overcurrent protection and supply wiring.
- **Reliable Earth Grounding -** Maintain reliable earth grounding of rack-mounted equipment. Give particular attention to supply connections that are not direct connections to the branch circuit: for example, using non-HP power strips.

Preparing the Rack

The column adapters and rack nuts must be connected to the rack before mounting the slide mechanism. Once the slides are correctly mounted, then the HP NetServer LC 2000r can be installing into the rack. A cardboard rack mounting template comes with the HP NetServer. The template identifies the column adapter and rack nut locations on the rack.

HP NetServer Rack Mount Parts List

Ensure the rack-mounting kit provided with the HP NetServer contains the following parts:

Table 8-1. Parts for Rack Mount Kit

Quantity	Description
2	Slides
4	Rack Nuts
12	Rack Nut Screws (M5 x 16mm)
6	Screws for Slides (8-32 x ¼ inch, 4 panhead and 2 flathead)
2	Column Adapters
1	Template

Marking the Rack and Attaching Rack Nuts

Use this section to mark the front columns and attach the rack nuts to the rear columns of the HP System/E or HP System/U rack. The column adapters attach to the front columns and the slides are attached to the column adapters and the rack nuts to hold the NetServer's slides in place. The rack template and marking pen are used to identify and mark the locations on the columns.

CAUTION	If other rack components are to be mounted in the rack below the HP NetServer, install those components before starting to mount the NetServer.

NOTE	Use the *HP Rack Configuration Tools* to determine where in the rack to mount the HP NetServer. The tools are available at: **`http: //www.hp.com/netserver/support`**

English

1. Find the rack-mounting template.

   If your HP NetServer is still in its box, the template should be in the accessories tray that sits on top of the NetServer itself.

2. Hold the template alongside the outside face (front) of the left front rack columns.

3. Line up the bottom of the template with the lower line of the NetServer's location in the rack.

   The template covers a span of 5 EIA units, which is the height requirement of the HP NetServer.

4. Use the marking pen to mark the 2nd and 14th holes on both front columns, as shown on the template. See Figure 8-3.

NOTE The two column adapters are mounted at the 2nd and 14th holes on the respective front column and provide the captive nuts for mounting the rack slides to the front columns at 7th and 9th holes from the bottom. If you don't have the template, Figure 8-3 shows the location on the front columns for the column adapters.

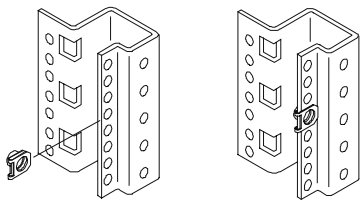


Figure 8-2. Placing Rack Nuts on Rack Columns

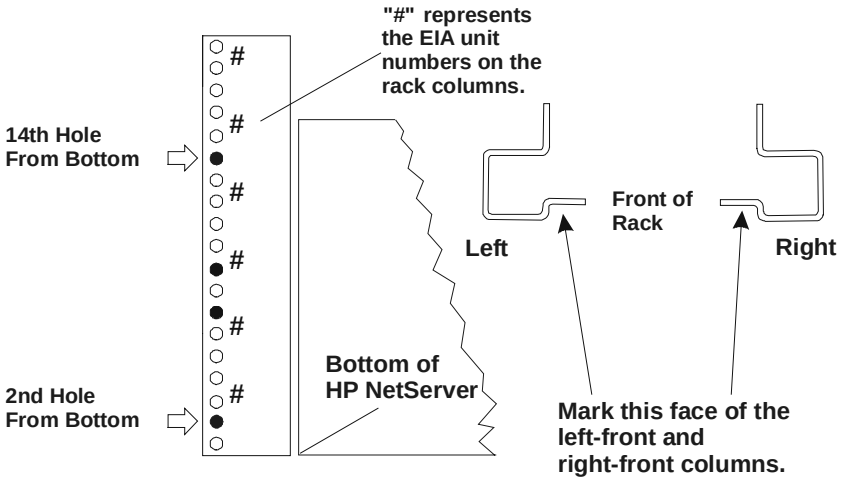

"#" represents the EIA unit numbers on the rack columns.
14th Hole From Bottom
2nd Hole From Bottom
Front of Rack
Left
Right
Bottom of HP NetServer
Mark this face of the left-front and right-front columns.

Figure 8-3. Location Marks on the Rack's Front Columns

5. Turn the template over and use it to mount rack nuts (at 7th and 9th holes) on the left-rear and right-rear rack columns.

   The template provides you with the nut placement locations. If you don't have the template, Figure 8-4 shows rack nut placement for the two rear rack columns.

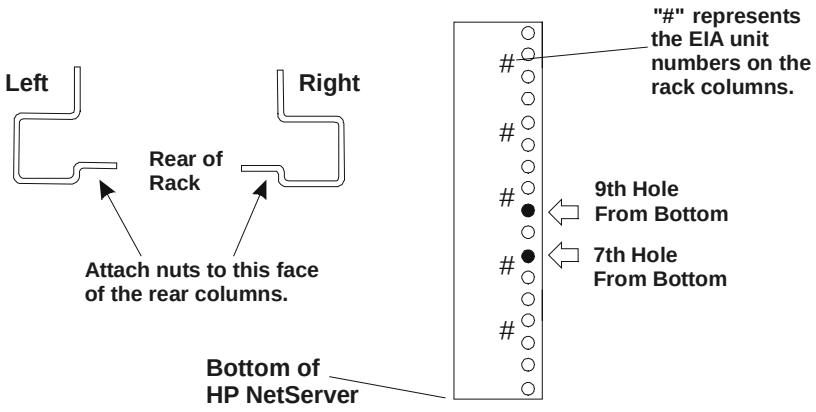

"#" represents the EIA unit numbers on the rack columns.
Left
Right
Rear of Rack
Attach nuts to this face of the rear columns.
9th Hole From Bottom
7th Hole From Bottom
Bottom of HP NetServer

Figure 8-4. Rack Nut Locations on the Rack's Rear Columns

English

Attaching the Column Adapters and Slides

1. Pull the anti-tip foot forward out of the bottom of the rack.

   See Figure 8-6 for the anti-tip foot location.

2. Align the left HP column adapter to the left front column as shown in Figure 8-5.

3. Match the column adapter holes (2nd & 14th) to the marks on the front column and place the column adapter mounting holes behind the column face. See Figure 8-5.

4. With the column adapter held in position, insert two screws (M5) through the holes in the column into the captive nuts on the column adapter. See Figure 8-5.

5. Repeat Steps 2 through 4 for the column adapter on the right front column.

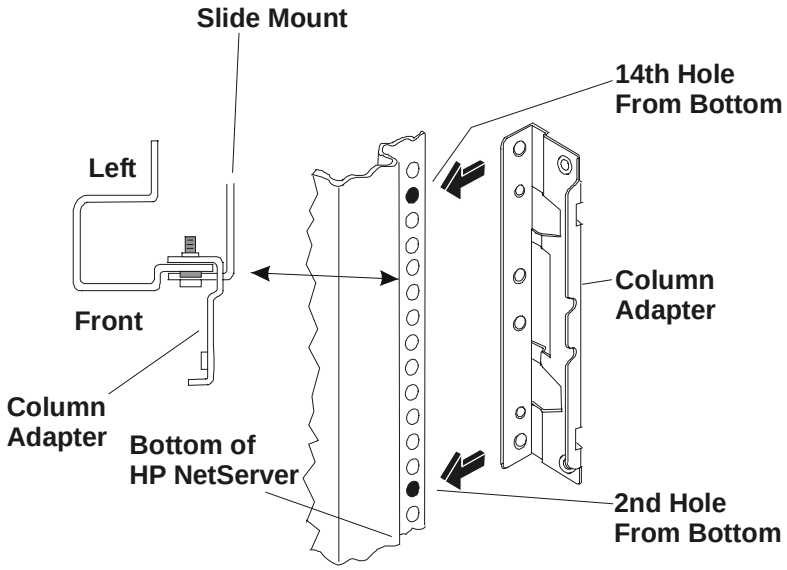


Figure 8-5. Mounting Column Adapter to Front Columns

6. Hold a slide in position inside the two left-hand rack columns and observing the following items.

   a. The mounting flange on each end of the slide must wrap around the outside face of both the front and rear columns. See Figure 8-6.

b. The two holes in the mounting flange should line up with the captive nuts (at 7th and 9th holes) in the column adapter and the two rack nuts you installed on each rear column.

c. The extending portion of the slide (slide member) should point forward out of the rack.

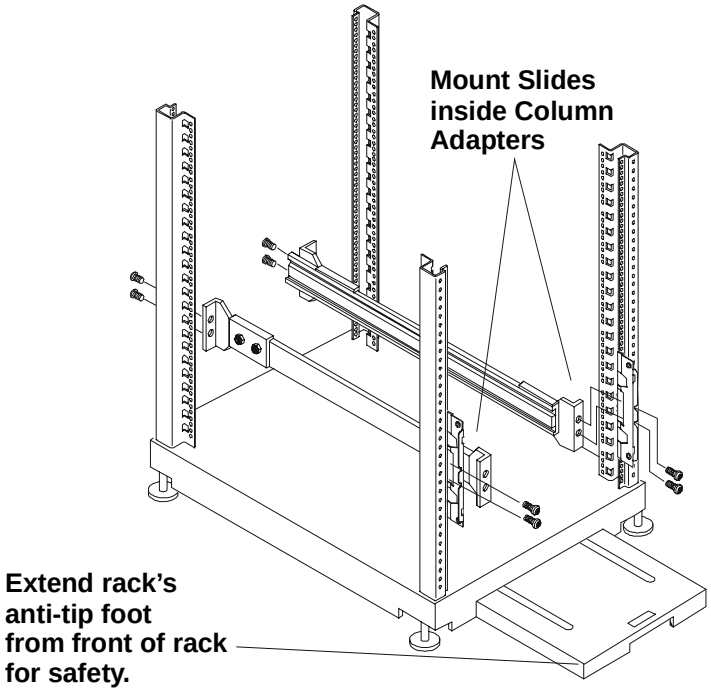


Figure 8-6. Securing the Slides to the Rack Columns

7. With the slide pushed firmly into position, insert two screws through the slide's front bracket into the captive nuts on the left column adapter.

   a. Secure the screws only loosely at first, so the bracket can settle into the lowest possible position. There is a dimple in the bracket to position the slides in the proper location.

   b. Then tighten the screws until the bracket is held firmly to the column adapter and rack column. See Figures 8-5 and 8-6.

English

8. Fasten the slide's rear bracket to the rack nuts on the left-rear column.
   a. Secure the screws only loosely at first, so the bracket can settle into the lowest possible position. There is a dimple in the bracket to position the slides in the proper location.
   b. Then tighten the screws until the bracket is held firmly to the column.
9. Attach the other slide to the right-front column adapter and right-rear rack column by repeating Steps 6-8.

Placing the HP NetServer in the Rack

Use this procedure to position the HP NetServer into the extended slides and secure the chassis to the slides. Once the NetServer is in the rack, then you can connect the Cable Management Arm to the rear of the NetServer.

WARNING	To prevent rack instability while mounting the HP NetServer pull the rack's anti-tip foot forward out of the bottom. Failure to do so could result in injury and equipment damage. To prevent the rack from rolling while you mount the HP NetServer, ensure the leveler screws on the rack's lower four corners are in firm contact with the floor. See Figure 8-7.

1. Lower the leveler screws on the rack's lower four corners to make firm contact with the floor. See Figure 8-7.
2. Ensure you have extended the anti-tip foot from the rack before continuing this procedure. See Figure 8-7.

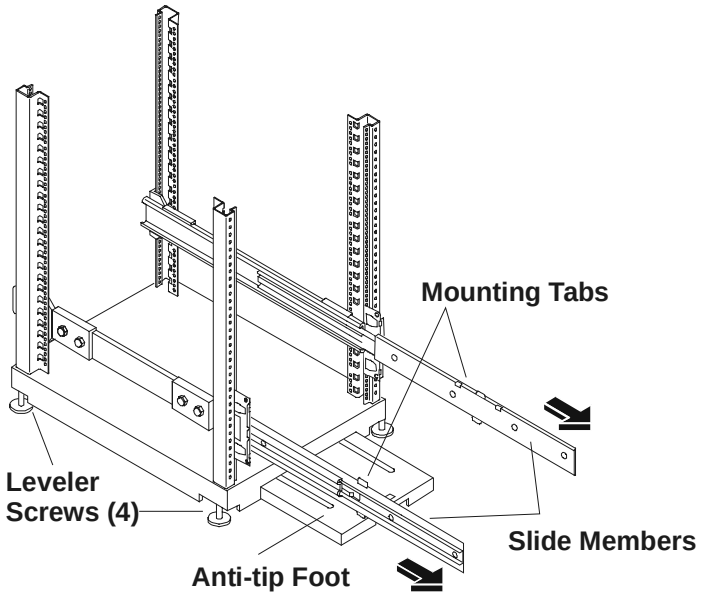


Figure 8-7. Pulling Out the Slides

3. Pull out both slides until the slide members are fully extended. See Figure 8-7.

   The slides click into position when locked. This locked position prevents the slides from moving back into the rack, unless the release latches are pressed as shown in Figure 8-10.

4. With the help of at least one other person, lift the HP NetServer by its four handles off the floor or pallet.

5. Move the rear of the NetServer just beyond the extended slide members.

6. Position the NetServer's channels on each side to insert the slide members into the channels. See Figure 8-8.

   The mounting tabs in the slides will engage the slots in the chassis. See Figure 8-7.

English

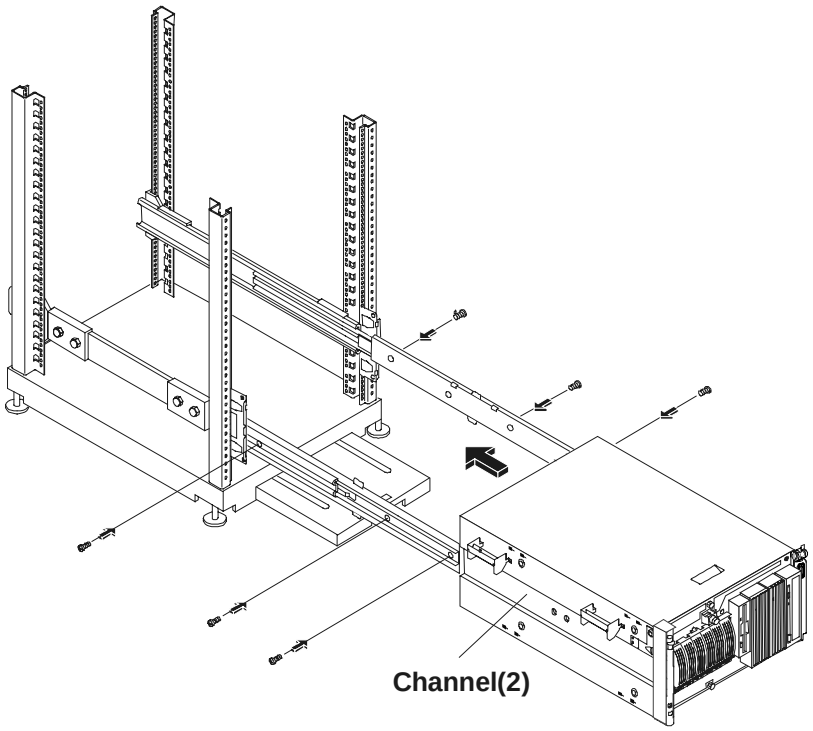


Figure 8-8. Mounting the HP NetServer on the Slides

7. Move the slide members into the NetServer's channels until both slide members are underneath all four of the NetServer's handles. See Figures 8-8 and 8-9.

   The mounting tabs in the slides should be in position to fit into the openings in the chassis. See Figures 8-7 and 8-8.

8. Lower the NetServer onto the slide members. See Figure 8-9.

   The handles will temporarily support the NetServer on the slides.

9. Adjust the NetServer's position on the slide members to line up the mounting holes on each side (3 each) of the chassis with the screw holes in the slide members.

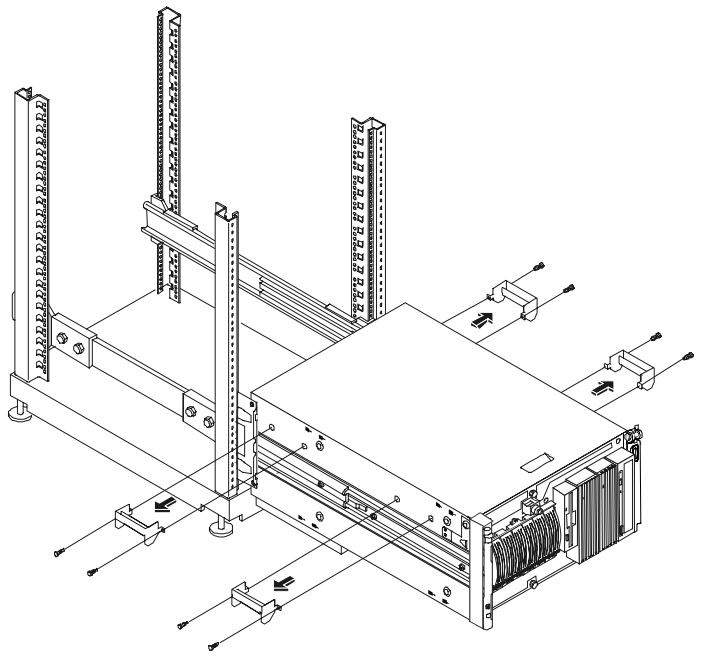


Figure 8-9. Removing the Mounting Handles

10. Insert the flathead screws into the slides' holes at the rear and the panheads screws in the other four places to secure the chassis to the slides.
11. Use a T-15 Torx driver to remove the screws holding the handles to the NetServer. See Figure 8-9.
12. Take the handles off the NetServer and store the handles and screws in a convenient place. See Figure 8-9.

    The handles can be re-attached whenever you remove the NetServer from the rack. If moving the NetServer elsewhere, always package it with the handles attached.
13. Press in the release latches on each slide, and push the NetServer all the way into the rack. See Figure 8-10.

    The blue Slide Release buttons in the Bezel moldings on each side of chassis' front edge must click into the latches in the column adapters on the two front rack columns.

English

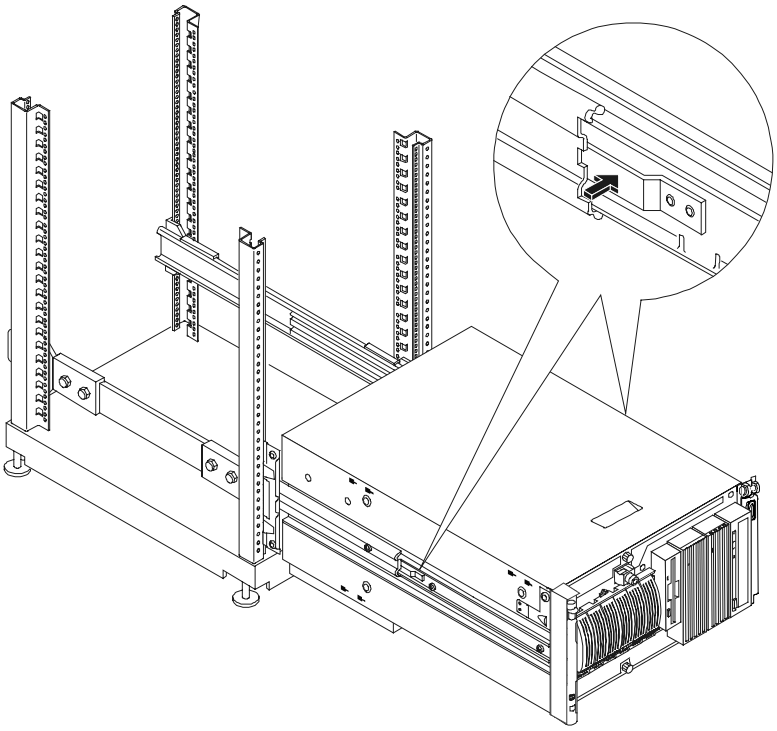


Figure 8-10. Pressing in the Release Latches

14. Verify the NetServer will slide all the way into the rack, before continuing with the procedures.
15. Continue with the next section, "Attaching the Cable Management Arm," before securing the HP NetServer in the rack.

Attaching the Cable Management Arm

Use this procedure to mount the Cable Management Arm on the HP NetServer LC 2000r when mounted in the HP System/E or System /U racks. The HP NetServer LC 2000r's Cable Management Arm allows the cables, including the power cord, to move in and out with the HP NetServer chassis without any damage or being accidentally disconnected. See Figure 8-11.

WARNING	Before sliding out the HP NetServer LC 2000r, ensure the anti-tip foot is still extended from the front of the rack. A tip-over hazard exists, so never slide more than one component out of the rack at a time.

1. Ensure the HP NetServer LC 2000r is pushed all the way into the rack.
2. At the rear of the HP NetServer, place rack nuts on the left column in the 12th and 14th holes above the baseline (bottom) of the NetServer. See Figure 8-11.

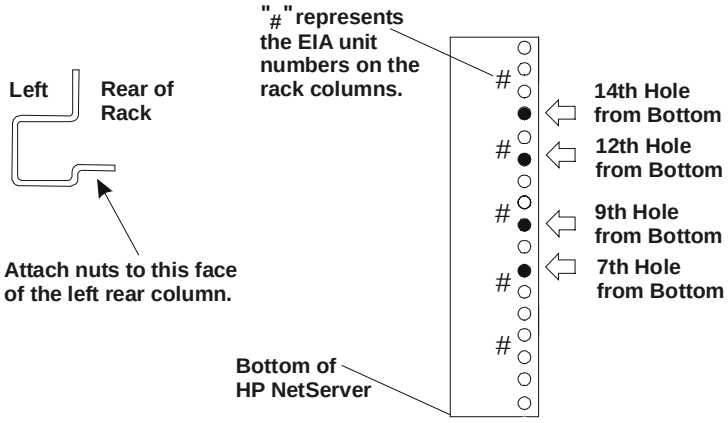

"#" represents the EIA unit numbers on the rack columns.
Left
Rear of Rack
Attach nuts to this face of the left rear column.
14th Hole from Bottom
12th Hole from Bottom
9th Hole from Bottom
7th Hole from Bottom
Bottom of HP NetServer

Figure 8-11. Attaching the Rack Nuts to the Left Column

3. Orient the Cable Management Arm as shown in Figure 8-11.
4. Match the inner flange mounting holes with the two captive nuts at the rear of the NetServer. See Figure 8-12.

   The captive nuts are located near the external SCSI Connector (knockout) location.

English

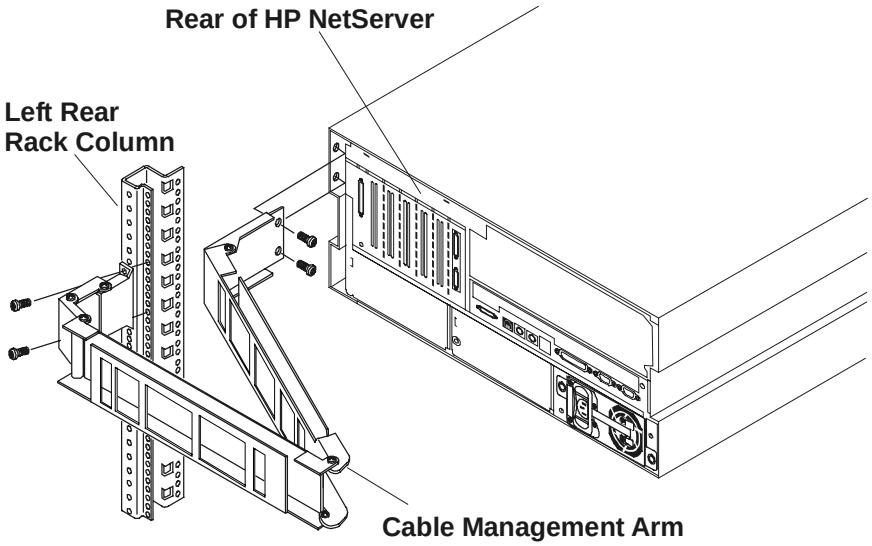


Figure 8-12. Attaching the Cable Management Arm

5. Attach the other flange of the cable arm to the rear column of the rack with the two M-5 pan head T-25 Torx screws, which are included with the Arm.
6. Attach the flange to the NetServer with the two 8-32 pan head Torx T-20 screws, which are included with the Arm. See Figure 8-12.
7. Extend the NetServer out of the rack to ensure the Cable Management Arm moves along with the chassis without binding.

NOTE Refer to the *HP NetServer LC 2000r Rack Cabling Reference Guide*, for information about cable dressing and routing.

8. If the Cable Management Arm moves with the chassis and the rack installation appears to be successful, slide the NetServer into the rack.

   The NetServer should click into the latches on the two column adapters.
9. If the NetServer is not in a restricted-access area, tighten both slide securing screws on the bezel latching mechanisms. See Figure 8-13.
10. Plug the HP NetServer's power cable and all available data cables into the back of the NetServer.

Attaching the Front Bezel

The front bezel attaches to the HP NetServer by a hinge on the left and a latch on the right. The hinge has three spring-loaded hinge pins to secure the bezel. The bezel is held in place on the right with a latch allowing the bezel to swing open when pulled from the right. The chassis is shipped with the bezel hinge and latch in place. The column adapters are the only items requiring installation on the rack, which is done before mounting the rack slides.

1. Position the Bezel in front of the HP NetServer LC 2000r as shown in Figure 8-14.

   The hinge pins must be pushed down with the Blue Tab shown in Figure 8-13 to engage the hinge pins. When the Blue Tab is released, the spring loaded hinge pins move up to grasp the bezel holding it in place. The bezel is then swung closed on the right to engage the latch. See Figure 8-13.

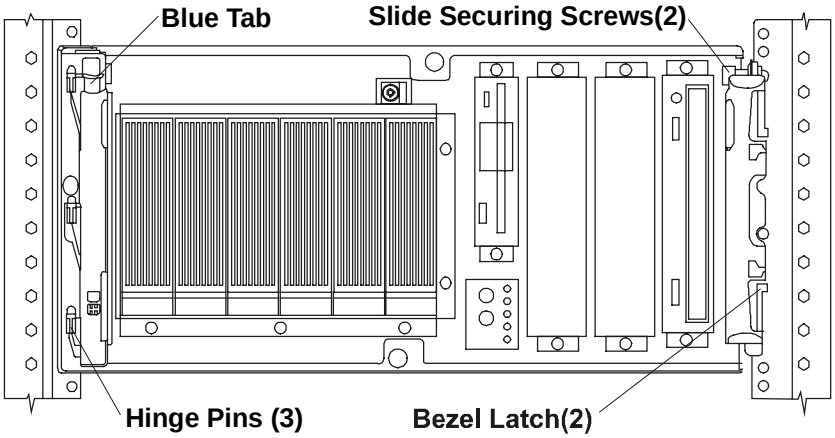


Figure 8-13. Hinge Pins and Blue Tab Release

English

2. Press down on the blue Bezel Release Tab shown in Figure 8-13.

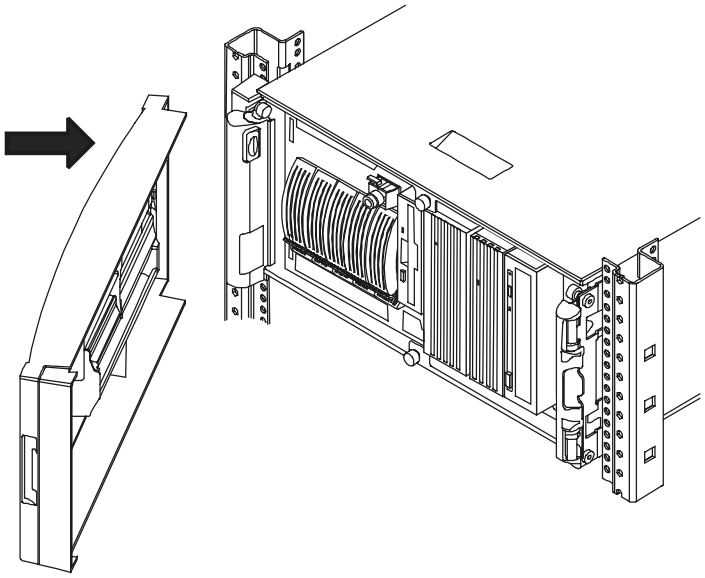


Figure 8-14. Attaching the Bezel to the NetServer

3. Press the bezel onto the front of the HP NetServer and release the Blue Tab to engage the hinge pins. See Figures 8-13 and 8-14.
4. Swing the open bezel to the right to engage the latch and close the bezel.

Continuing with the Rack Installation Process

After you install the HP NetServer in the rack, refer to the *HP Rack Installation Road Map* to continue with the process of installing and configuring your HP rack system.

English

9 Connecting the Monitor, Keyboard, Mouse, and UPS

Introduction

This chapter provides the instructions for connecting a monitor, keyboard, mouse and Uninterruptible Power Supply (UPS) to the rear of the HP NetServer.

Connecting the Monitor, Keyboard, and Mouse

To connect the peripheral control devices and monitor to the HP NetServer LC 2000/2000r, refer to the following procedure.

1. Connect the monitor, keyboard, and mouse to the HP NetServer LC 2000/2000r using the connections provided on the rear of the chassis. See Figure 9-1.

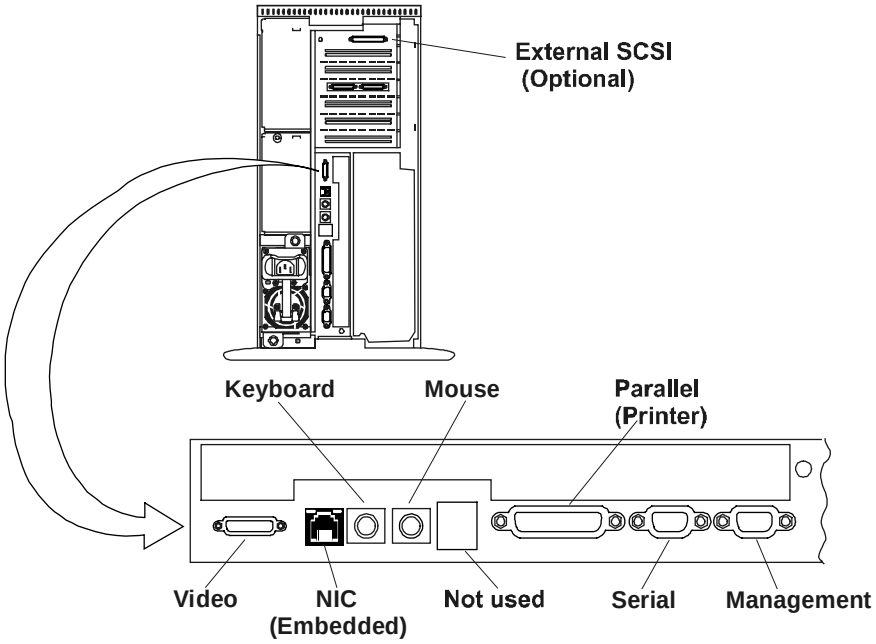


Figure 9-1. Connection Ports (rear of chassis)

NOTE If you have a console switch box, refer to the switch box's user guide for instructions on connecting the keyboard, mouse, and monitor.

CAUTION The Keyboard and Mouse ports are both PS/2 ports, but are not interchangeable. If you plug the keyboard into the Mouse port, or the mouse into the Keyboard port, you will get an error message and the system will not finish the boot process.

Connecting the UPS (Uninterruptible Power Supply)

1. If you have an UPS (Uninterruptible Power Supply) installed in the rack, turn it on.
2. Connect the provided serial cable between the UPS and the HP NetServer as specified in the *HP Rack Installation Road Map*.

   Refer to the user guide included with the UPS and to the *HP Rack Installation Road Map* for additional information.

10 Configuring the HP NetServer

Introduction

This chapter supports setting up software on your HP NetServer LC 2000/2000r. You may choose to do this before or after you install the NetServer in the rack. For more information on the overall process, see Chapter 1 of this manual and refer to the *HP Rack Installation Road Map.*

HP NetServer Navigator CD-ROM

The *HP NetServer Navigator CD-ROM* provides you with two choices for running the CD-ROM and accessing its configuration information and utilities.

- Run the Navigator CD-ROM on the HP NetServer to obtain the required configuration information and set up the NetServer.

  You need to the run the Navigator CD-ROM on the NetServer to install the NOS and all the bundled drivers and utilities. Refer to the following topics for the contents of Navigator's Main Menu when used on the NetServer.

- Run the Navigator CD-ROM on any Windows PC after setting up the HP NetServer to obtain the required configuration information.

  Refer to "Running the Navigator CD-ROM on a Windows PC" later in the chapter for more information.

Contents of the Navigator CD-ROM – HP NetServer

The Main Menu directs you to modules where you can perform configuration tasks or create the diskettes required for installation including the Utilities. The Information Assistant button directs you to the *HP NetServer Online Documentation CD-ROM*. The menu buttons are:

- Readme File
- Configuration Assistant and Installation Assistant
- HP Management Solutions
- Information Assistant (directs you to the *HP NetServer Online Documentation CD-ROM)*
- NetServer Utilities
- User Preferences

Before the HP Navigator main menu is displayed, you may be prompted to set the language, time, and date. You can also set the language displayed by the BIOS. Refer to the following topics for more information on the Navigator CD-ROM's main menu items when run on the HP NetServer.

Obtaining HP Navigator CD-ROM Release History

Check the release history to ensure you have the most recent firmware upgrades and software drivers for the HP NetServer.

To ensure you have the latest versions of the HP NetServer Navigator software, obtain the current *HP NetServer Navigator CD-ROM* Release History. The Release History is updated for each new release of the CD-ROM.

The Release History briefly describes the following for each release:

- Major changes to the HP Navigator CD-ROM that were made for that release
- Version number
- Release date
- Part number of the HP Navigator CD-ROM
- Document Number

The Status Report for your specific *HP NetServer Navigator CD-ROM* describes in detail any software updates between this version of the CD-ROM and the previous version.

To obtain a Release History or a Status Report, you will need a Document Number.

- Release History: Document Number is 6005
- Status Report: The number is different for each Status Report. Each version of the *HP NetServer Navigator CD-ROM* has a four-digit Document Number printed on the disk.

English

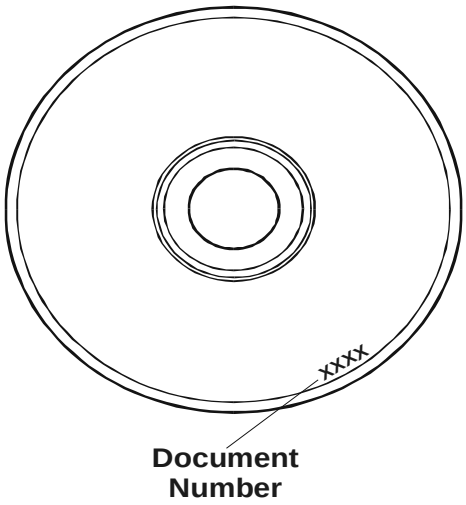


Figure 10-1. Location of Document Number on Navigator CD

You can obtain the Release History and Status Report for your CD-ROM in one of these ways:

- Internet WWW--
  `http://www.hp.com:80/netserver/support/news_main.html`
- Internet FTP--**`ftp://ftp.hp.com/pub/servers`**

Obtaining Up-to-Date Configuration Details

You can find up-to-date configuration information on the Navigator CD-ROM, both in the Readme File and in Configuration Assistant. Use these sources to learn about applicable compatibility issues and get the latest list of HP-tested peripherals and accessories (see the Test Products List in Configuration Advisor).

Access the Readme File First

This file includes the most recent information that was not included in the printed installation documentation. Follow these steps to view the file.

1. Press the power-on button.
2. Press the CD-ROM drive eject button.
3. Place the *HP NetServer Navigator CD-ROM* in the drive, and press the eject button again to close the drive.

The CD-ROM will start automatically using the auto-run feature as soon as the drive closes.

NOTE	Using the low profile CD-ROM drive is slightly different than full-height units. The disk drawer will spring out only part way when you push the eject button. You must manually pull the drawer open and manually close it after inserting a CD-ROM.

4. If the CD-ROM does not start automatically, push the reset button.
5. If the system fails to boot, follow the diagnostic instructions on the screen.
6. Go to the HP Navigator main menu.
7. If the language needs to be changed, select **User Preferences** and the language you want.

   You can also change the language of the BIOS, but this is only available when in the BIOS Setup Utility.
8. Select **Readme File** and read it carefully before beginning your installation.

   The Readme file contains the latest information to help you install your HP NetServer.

Configuration Assistant

Configuration Assistant guides you through the steps necessary to configure the HP NetServer. You can view configuration advisories at one step and change your hardware if necessary.

HP Configuration Assistant and Installation Assistant guide you through the steps necessary to configure the NetServer. Three methods of configuration are available: Express, Custom, and Replicate.

HP Installation Assistant guides you through the NOS installation and configures the NOS with the appropriate drivers for the HP-bundled configuration. If Configuration Assistant detects that a newer version of the BIOS is available on the HP Navigator CD-ROM it will prompt you to update the BIOS.

Before you run Configuration Assistant and Installation Assistant, you may need to run the Symbios Configuration utility and the Setup Utility to do the following:

- If you need to verify or modify SCSI host adapter settings.
- If you need to low-level format SCSI disks or verify SCSI disk media, run the Symbios Configuration utility.

English

Running Configuration Assistant and Installation Assistant

Insert the *HP NetServer Navigator CD-ROM* into the CD-ROM drive. Turn the power off, wait 10 seconds, and turn the power on again. If the system fails to start, follow the instructions on the screen.

1. You may need to set the language, time, and date when the HP NetServer Navigator starts.
2. If this is true, follow the onscreen instructions.

   You can also change the language in which BIOS error messages are reported, but this is only available when in the Setup Utility (BIOS).
3. Go to the HP NetServer Navigator main menu and select **Configuration Assistant and Installation Assistant**.
4. Follow the on-screen instructions in Configuration Assistant to continue the NetServer installation.

Express Configuration

Express configuration is the preferred method to configure your NetServer since it leads you through the configuration process in sequence and offers you default selections. Express configuration includes the following steps:

- Update System BIOS:

  This step appears if Configuration Assistant detects a newer version of the BIOS is available on the *HP NetServer Navigator CD-ROM*. You must update your BIOS to the new version if you want to continue in Express mode. You can also change the language the BIOS displays.
- Select NOS:

  You will be asked to select the NOS and version you plan to install.
- Select NOS Installation Mode:

  For certain versions of Novell NetWare/IntranetWare and Microsoft Windows NT Server, you will be asked;

  ```
  Would you like to use HP's automated mode of
  NOS installation?
  ```

  ◊ Select **Yes** for automated NOS installation.

Perform an automated NOS installation for first-time installation of Novell NetWare/IntranetWare or Microsoft Windows NT Server on a factory-configured NetServer. Automated NOS installation will guide you through the NOS installation, set up the hard disk drive, and configure your NOS with appropriate drivers for HP-bundled configurations.

This installation also loads the Local Support Tool onto Windows NT or NetWare systems. The Local Support Tool is a stand-alone support tool accessed directly from the NetServer. It gives you information to help you manage the NetServer.

Automated NOS Installation: For certain versions of Novell NetWare/IntranetWare or Microsoft Windows NT Server, Configuration Assistant partitions and formats the hard disk drive, and Installation Assistant guides you through the NOS installation and configures the NOS with the appropriate drivers for the HP-bundled configuration.

◊ Select **No** for manual NOS installation.

Perform a manual NOS installation if you are installing a NOS other than certain versions of Novell NetWare/IntranetWare or Microsoft Windows NT Server, or if you have replaced any HP components.

For Manual NOS Installation *Only*: Before you perform a manual NOS installation, you must print instructions and manually create NOS-specific driver diskettes as follows:

◊ Create Drivers Diskette(s): On the Create Drivers Diskette(s) screen, select **Create Drivers Diskette(s)** to create one or more customized diskettes containing HP drivers and configuration files to use when you install the NOS.

◊ Print and Read Instructions: On the Show NOS Installation Instructions screen, select **Save to Disk** to copy the Network Operating System Installation Instructions to disk. Then print them out from the disk. Read the instructions first, and then follow them to manually install the NOS.

- View Configuration Advisories:

Read the configuration advisories and print them if necessary. You can change your hardware at this time to conform to the advisories.

English

- Configure Remote Management:

  This utility configures the Integrated Remote Management device for remote management. It enables remote, dial-up HP NetServer management.

  To configure Integrated Remote Assistant, select **Configure Remote Management** on the Configure Remote Management screen.

- Show System Information:

  Use this screen to display information about standard and accessory boards and devices in the system, as well as the used and available system resources.

  ◊ Select **View Hardware Inventory** on the Show System Information screen to display information about standard and accessory boards and devices in the system.

  ◊ Select **View Resources** on the Show System Information screen to display used and available system resources such as memory ranges, I/O port ranges, DMA channels, and interrupt (IRQ) levels.

- Configure Disk Array:

  This configures your HP disk array, but requires you to fill out the Disk Array Configuration Worksheet before proceeding. Click **Help** for more details.

- Install Utility Partition:

  This step creates an 32 MB utility partition on the NetServer hard disk where HP Navigator will copy DiagTools, the BIOS Update utility, the Event Log Report utility, the Disk Array utility, the NIC Configuration utility, the Integrated Remote Assistant utilities, troubleshooting utilities, and other utilities. However, this is not available for SCO UNIX.

  Select **Execute** on the Install Utility Partition screen.

- Execute Card Utilities:

  Use this function, when Configuration Assistant detects installed boards, which have additional configuration utilities on the *HP NetServer Navigator CD-ROM*. By selecting **Execute** on the Execute Board Utilities screen, you can execute these utilities to complete the configuration of the boards.

Custom Configuration

Only select **Custom** on the Configuration Assistant menu if you are experienced in NetServer configuration and have a preferred sequence of steps, or if you prefer to configure your system one component at a time. In Custom configuration mode, you perform the same configuration steps as provided in Express configuration mode, but these can be done in any order.

After you have selected the NOS, version, and NOS installation mode (automated or manual), and after you have viewed the Configuration Advisories, the Custom Configuration screen displays the following menu:

Essential Steps

- Configure Remote Management:

  This executes the Integrated Remote Assistant configuration utility.

- Configure Disk Array:

  This configures your HP disk array, but requires you to fill out the Disk Array Configuration Worksheet, before proceeding. Click **Help** for more details.

- Execute Card Utilities:

  This executes the available configuration utilities for installed cards.

- Create Drivers Diskette(s):

  SCSI HP NetRaid Adapter and video adapter drivers for MS Windows NT 4.0 on HP NetServers.

Recommended Steps

- Update System BIOS:

  This utility will update the system BIOS. The utility partition, if installed, will also be updated.

- Install Utility Partition:

  Installs utility partition to the boot or system drive. This is not available under SCO Unix.

- Show System Information:

  Shows hardware inventory and system resource (interrupts, I/O space) allocation.

- Show NOS Installation Instructions:

  Select this option to save a copy of NOS installation instructions to diskette and to print it out.

English

Replicate Configuration

In Replicate configuration mode, you can save a copy of your current system configuration or load a previously saved configuration. This method saves time when configuring multiple, identical systems. Select **Replicate** on the Configuration Assistant menu.

NOS Installation

The NOS installation process, whether automated or manual, is the same in custom configuration mode as in Express configuration mode:

- For Manual NOS Installation Only:

  Before you perform a manual NOS installation, you must manually create NOS-specific drivers diskettes and print instructions, as follows:

  ◊ Create Drivers Diskette(s): On the Create Drivers Diskette(s) screen, select **Create Drivers Diskette(s)** to create one or more customized diskettes containing HP drivers and configuration files to use when you install the NOS.

  ◊ Print and Read Instructions: You may already have done this directly from the Custom Configuration menu option **Show NOS Instructions**. If not, on the Show NOS Installation Instructions screen, select **Save to Disk** to copy the Network Operating System Installation Instructions to disk. Then print them out from the disk. Read the instructions first and then follow them to manually install the NOS.

- Install NOS:

  ◊ Automated NOS Installation:

  For certain versions of Novell NetWare/IntranetWare or Microsoft Windows NT Server, Configuration Assistant partitions and formats the hard disk drive, and Installation Assistant guides you through the NOS installation and configures the NOS with the appropriate drivers for the HP-bundled configuration.

  ◊ Manual NOS Installation:

  Follow the instructions on the screen and the Network Operating System Installation Instructions that you printed out.

HP Management Solutions

HP Management Solutions is a comprehensive suite of utilities, applications, and built-in features to manage multiple HP NetServers locally or from remote locations. If you are unfamiliar with these products or concepts:

- Go to the Management Web site on the HP Web Site at

  `http://www.hp.com/go/netserver-mgmt`

  to view information on HP TopTools and all other HP NetServer management options for your NetServer.

- Read the *HP NetServer Server Management Reference Guide* included with your NetServer. This guide covers TopTools and all other HP NetServer management utilities and options for the HP NetServer.

- View demonstrations of HP Remote Assistant and other third-party management applications. On the *HP NetServer Navigator CD-ROM*, select **HP Management Solutions** on the main menu.

TopTools for Servers

HP TopTools for Servers is a browser-based management software tool that provides remote administration and monitoring of critical HP NetServer components. TopTools provides vital information for the fastest troubleshooting and proactive management of NetServers. Processors, memory, storage, and NICs are a few examples of the components managed by TopTools.

Some of the features of TopTools include:

- Notification of problems with key hardware components including memory, disk drives, SCSI controllers, NICs, and power supplies, as well as environmental problems with temperature and voltage

- Unified event log to review a complete history of HP NetServer activity in one place

- Predictive disk problem warning backed by HP pre-failure warranty replacement

- Disk capacity threshold alert and usage tracking

- View critical HP NetServer inventory information such as the BIOS version, driver and firmware versions, PCI slot contents, and serial and parallel ports.

English

- Easy linkage with leading management platforms including HP OpenView Network Node Manager
- Support for DMI 2.0, which provides the same Desktop Management Interface inventory information for NetServers as for desktop PCs

  TopTools is included with every NetServer L series HP NetServer and should be installed to help your service provider troubleshoot your system. TopTools is located on *HP TopTools CD-ROM* included with the system.
- See the *HP NetServer Management Reference Guide* for detailed installation instructions.
- You can also download the TopTools software and documentation from the NetServer Web Site at

  `http://www.hp.com/toptools`

TopTools Remote Control

The TopTools Remote Control Card, which may be bundled with the system, provides a management function for the HP NetServer. It enables remote LAN or modem-based server management and alerting through a pager or e-mail for improved remote administration of your NetServer.

TopTools Remote Control provides:

- Remote monitoring of critical HP NetServer components, regardless of system state
- Access for troubleshooting and problem resolution, regardless of system state
- Pager or e-mail notification of critical HP NetServer events to alert you to problems
- Access to the Event Log
- Server reset and power control
- Remote system BIOS or TopTools Remote Control update
- Password and dial-back security
- Text console redirection of the HP NetServer console
- Full graphics console redirection of Microsoft Windows NT Servers across the network or over a modem connection using Symantec's pcANYWHERE32 software (included with the system).

See the *HP TopTools Remote Control User Guide* for details.

HP Integrated Remote Assistant

Your HP NetServer comes with a built in product called the HP Integrated Remote Assistant (referred to as Integrated RA). Integrated RA combines intelligent hardware and software for your NetServer that provides administrators with instant notification of NetServer operations and events.

The HP Integrated RA performs most of the same functions as the TopTools Remote Control Card, except it uses an ASCII interface, can only be accessed through a modem connection and does not provide e-mail notification. For details on setup and configuration of Integrated RA, refer to the *HP NetServer Online Documenation CD-ROM* or the *Remote Administrator Guide* included with your system.

Integrated RA consists of:

- **Built-in Integrated RA Features** – Remote management features are incorporated in the system board circuitry. Your HP NetServer includes a processor that permits server access independent of the NetServer's operating status. The **Management Port** on your NetServer allows serial (either modem or direct) communications with a remote PC or terminal. The Integrated RA can continue to monitor your NetServer even if it has been powered down, as long as the NetServer remains plugged in.
- **Remote Server Control and Management** – A management application stored in firmware provides for remote server control and management. HP Integrated RA features include console redirection, power switch control, event logging, and pager notification. An administrator can use the management software to transfer files between the NetServer and remote client and run DOS utilities on the NetServer. For example, you can remotely update the HP NetServer's BIOS.
- **Integrated RA Configuration Utility** – This DOS-based utility allows you to tailor NetServer operations for you particular requirements. You can use the utility to setup parameters for pager alerts and to enter administrator names for operation from different remote clients.
- **Optimized Windows-based Terminal Emulation Software (pcANYWHERE32 from Symantec Corporation)** – This software allows an administrator to easily connect to Integrated RA from a remote PC to monitor NetServer status, run diagnostics, or remotely take over server operations. An administrator can also use any ANSI terminal emulator or a dedicated terminal to communicate with the NetServer and run the management application.

English

- **SNMP Agents** – SNMP agents enable in-band (across the network) gathering of information and alert generation to an SNMP-based management client.

PcANYWHERE32

pcANYWHERE32 is remote-control graphics-redirection software from Symantec Corporation that allows you to take control of Microsoft Windows NT Servers across the network or over a modem. Refer to the *HP NetServer Online Documentation CD-ROM* for details, or the *HP TopTools Remote Control User Guide*.

NetServer Utilities

HP NetServer Utilities takes you to a menu where you can directly execute utilities such as the following:

- **DiagTools:** An easy-to-use hardware diagnostic for system verification, burn-in, and rapid troubleshooting.

NOTE	HP recommends using the HP DiagTools utility to verify all NetServer functions are operating correctly, after completing all the configuration topics. The HP DiagTools utility also generates a text file containing the hardware detected and the DiagTools test results. This text file, called a support ticket, should be saved to a diskette and used for future reference, especially by your support provider.

- **Event Log Report Utility:** Displays all logged HP NetServer management events, Power-On Self Test (POST) errors and other system events.
- **Diskette Library**: Allows you to conveniently generate a flexible diskette for any utility or driver available on the *HP NetServer Navigator CD-ROM*. For example, you can create flexible diskettes for the following utilities and drivers: BIOS Update, HP NetServer Assistant, PowerWise Assistant, DiagTools, and NOS Drivers.
- **Print or View Information:** Allows you to print or view the current system configuration including details of which boards are detected in the system and which resources are allocated to the boards.
- **Change User Preferences:** Lets you change the language used by the HP Navigator CD-ROM and the system date and time.

Setup Utility

The HP NetServer has a Setup Utility (BIOS) in read-only memory. The utility features several system configuration and housekeeping options, including security, and system console characteristics.

The following sections tell how to access the Setup Utility and how to perform selected tasks.

Starting the Setup Utility

To reach the Setup Utility, boot or reboot the system. After the first boot messages are displayed, this prompt appears:

```
Press <F2> to enter SETUP
```

Press F2 while the prompt is displayed. More boot messages appear, followed by the message Entering `Setup...` After the embedded (Symbios) SCSI Configuration initialization and the Optional ROM scan both finish, the menu bar of the Setup Utility appears.

If you do not press F2, the HP NetServer boots normally.

Menu Bar

The Setup Utility provides a menu bar that leads to several menus. The menu bar choices are:

- **Configuration** – Sets the system time and date, or select from the following options:
  - ◊ Integrated I/O Port Settings – Use this menu to enable/disable and then set the base I/O address and IRQs of the serial ports, Serial A and Management port and set the parallel port's parameters, including its mode (output only, bi-directional, or DMA channel).
  - ◊ PCI Device Settings – Use this menu to disable the Sharing Algorithm for each slot and manually set the IRQ for each PCI board installed into the six slots. This menu also includes setting the IRQ Locking feature for the embedded SCSI channels and the embedded LAN connection. Three more IRQs can be made available by disabling the Parallel, Serial A, and Management Ports.
  - ◊ Boot Settings – Use this menu to check the flexible disk drive, display the NetServer's configuration at boot time, skip certain tests during the boot process to speed up boot time, or change the (default) boot order, including device type, network boot, and hard drive boot order.

English

- ◊ Embedded LAN & SCSI Settings – Use this menu to set the embedded NIC to enable, disable, or enable as a boot device (Boot ROM Enabled). If the embedded NIC is enabled as a boot device, boot ROMs for enabled SCSI devices cannot be loaded. This menu also enables/disables the Wake-On-LAN feature.
- ◊ Keyboard & Mouse Settings – Use this menu to set the parameters of the keyboard, including NumLock, and set the PS/2 mouse to Auto (detect)/Enabled/Disabled. Disabling the mouse frees up IRQ 12, but prevents any installed PS/2 mouse from functioning.
- ◊ Flexible Disk & IDE Settings – Use this menu to change the flexible disk type and IDE settings of the HP NetServer's configuration. This would include selecting the hard drive's characteristics, manually or automatically, and selecting which drive would be the Primary Master or Slave.
- ◊ Processor/Memory Settings – Use this menu to select if the processor module's serial number (if supported) will be read by firmware, enables memory caching, and adds an extended memory gap in system address space.

- **Security** – Provides two submenus to choose from.
  - ◊ Power-On Password – Sets the administrator and user passwords, setting system to require a password after booting.

    The Administrator password must be set before setting the User password. Once the administrator password is set, the administrator can access and change all fields in the screens.

    If the User password is set, the user may only change the system time, date, and user password. The user may view all fields, but cannot alter any of the settings.
  - ◊ Hardware Security – Sets the system parameters for input device operation, including copying sensitive data and boot security.
- **Exit** – Exit the Setup Utility by saving changes or exit without saving changes, which reverts to previous settings.

  When you exit, the HP NetServer reboots.

Using the Setup Screens

Online help explains the settings displayed on the Setup Utility screens. Instructions are also provided for navigating between the screens and entering or changing the setup data.

- Press the right-arrow and left-arrow keys to move between selections on the menu bar. The menu bar is present at the top of the main selections.
- Press the up-arrow and down-arrow keys to move between fields on each screen. The currently-selected field is highlighted.
- Certain fields ask you to choose from a list of entries. In such cases, press the plus (+) or minus(-) keys repeatedly to display each possible entry, or the **Enter** (or **Return**) key to choose from a pop-up menu.
- Small arrow points (➢) precede some field names. This means the field is actually a submenu. To visit the submenu, select it with the arrow keys and press the **Enter** key. The submenu then appears in place of the current screen.
- The **Esc** key is the exit key. If you press the **Esc** key on one of the top-level screens, the Exit menu appears. If you press **Esc** on a submenu, the previous screen appears. When you are making selections from a pop-up menu, use the **Esc** key to close the pop-up without making a selection.

Changing the System Date and Time

Use this topic to change the HP NetServer's date and time and refer to the following procedure.

1. To reach the Setup Utility, boot or reboot the system and press **F2** when prompted.
2. If necessary, use the left-arrow key to select **Configuration** from the menu bar at the top of the screen.

   Once in the Setup Utility, the menu bar appears at the top of the screen with "Configuration, Security, and Exit" shown. The Configuration menu is the default menu and should be the highlighted selection at the left of the menu bar when the Setup Utility first opens.
2. If necessary, use the up-arrow key to move to the **System Time** field.

   The "System Time" field is highlighted by default when the "Configuration" menu is selected. This field actually consists of three sub-fields enclosed in brackets [xx:xx:xx]: hours to the left (24-hour clock), minutes in the middle, and seconds to the right.
3. Type in the hour and press **Enter** to move to the minutes field.
4. Then type in the minutes and press **Enter** again to move to the seconds' field.

English

5. Type in the seconds and press **Enter,** then use the arrow keys to leave this field.
6. Scroll to **System Date** field to enter the system date in the field.

   The dates are entered in the "System Date" field in the same way as the time is entered in the "System Time" field. This field also has three separate sub-fields for month, day, and year enclosed in brackets [xx/xx/xxxx].
7. Type in the month and press **Enter** to move to the day field.
8. Then type in the day and press **Enter** again to move to the year field.
9. Type in the year and press **Enter**, and then use the arrow keys to leave this field.
10. Use the right-arrow or left-arrow key to select the **Exit** menu.
11. Choose **Exit Saving Changes** from the list of exit options, then press **Enter**.

    A dialog appears and asks you to confirm your decision.
12. Choose **Yes** and then press **Enter**.

    Then the HP NetServer reboots.

Setting the HP NetServer's Boot Passwords

Use this topic to set a password to boot the HP NetServer. Further, you can have a separate administrator password and a user password, but the user password is limited in access once booted.

To configure the HP NetServer for passwords and require a password on boot-up, refer to the following procedure.

1. If not already in the Setup Utility, boot or reboot the system and press **F2** when prompted.
2. Use the right-arrow or left-arrow key to select **Security** from the menu bar.

   As soon as it is selected, the selections for the Security menu appear as shown below.

   ➢**Power-On Password**

   ➢**Hardware Security**

   The arrowhead ➢ indicates there is a submenu to select from.

3. If necessary, use the arrow key to move to the **Power-On Password** menu selection and press **Enter**.

   The Power-On Password is highlighted by default when the Security menu is selected.

   The first line in the menu is, "Administrator Password is [Set or Not Set]"

   ◊ If no password has been set, then "Not Set" will appear in the field. If this is the case, then you are not allowed to make any other selections in this menu, until you set an Administrator Password.

   The Administrator Password controls access to the Setup Utility and its settings. The User Password has only limited access to the Setup Utility, such as Date, Time, and Password.

   ◊ If "Set" is in the field, then you can change the password or make other selections in the menu. However, you must start with the User Password, but may choose to skip setting the User Password.

NOTE You must set the Administrator Password before changing a User Password or configuring the HP NetServer to boot with a password.

4. Press the **Enter** key to enter a new password or change the old one.

   A pop-up menu appears titled, "Set Power-On Password". If no password has been entered, the field "Enter New Password: [ ]" is highlighted. If a previous password has been entered, the field "Enter Old Password: [ ]" is highlighted.

5. Enter the password (new or old) in the appropriate field and press **Enter.**

   The password is accepted and the next field just below it, "Re-Enter New Password: [ ]" or "Enter New Password: [ ]" field is highlighted. For security reasons, the password does not appear on the screen.

6. If necessary, enter the new password in the "Enter New Password: [ ]" field.

7. Enter the new password again in the "Re-Enter New Password: [ ]" field.

   After re-entering the new password a pop-up menu displays asking you to confirm your selection.

English

NOTE To leave the pop-up menu without entering a password, press the **Esc** key at any time.

8. Choose **Yes** and then press the **Enter** key.

   The "Administrator Password is" field changes to "Set" and on the next boot the HP NetServer will requests a password to access the Setup Utility.

9. If you want a password on boot up, you may skip the "User Password is:" field and go directly to "Network Server Mode: [Disabled]" in Step 10.

10. If you want to enter a User Password, use the arrow keys to move to the "User Password is:" field and repeat Steps 3-7 for the User Password.

11. Use the arrow keys to move to the "Network Server Mode: [Disabled]" field.

12. Press **Enter** to toggle [Disabled] to "Enabled" in the Network Server Mode field.

    Setting this mode to Enabled will cause the HP NetServer to prompt for a password when booting from a diskette or a CD-ROM, but will not require a password when booting from a hard drive. The power-switch and keyboard will remain locked until the password is typed.

13. To use the front panel keyboard lock button, use the arrow keys to move to the "Keyboard Lock [Disabled]" field.

14. Press **Enter** to toggle [Disabled] to "Enabled" in the Keyboard Lock [Disabled] field.

    Setting this feature enables the keyboard lock button on the front bezel of the HP NetServer. Once enabled, pressing the keyboard lock button will lock the keyboard and mouse until the password is typed. You must set the password before enabling this feature.

15. To add video blanking to the password on boot, use the arrow keys to move to the "Video Blanking [Disabled]" field.

16. Press **Enter** to toggle [Disabled] to "Enabled" in the Video Blanking [Disabled] field.

    Setting this feature only provides a blank screen on the HP NetServer's Monitor, when the Keyboard Lock or Network Server Mode are also enabled. The screen remains blank until the password is typed and only applies to the monitor connected to the HP NetServer's embedded video connection. As with the other features the Video Blanking is dependent upon, you must set the password before enabling this feature.

17. To use the Hardware Security menu under Security, use the help files provided with the selections.
18. Select the **Esc** key to exit this menu.
19. Use the right-arrow key to go to the Exit menu.
20. Choose **Exit Saving Changes** from the list of exit options, and then press **Enter**.

    A dialog appears and asks you to confirm your decision.
21. Choose **Yes** and then press the **Enter** key.

    Then the HP NetServer reboots.
22. To change one of the passwords at a later date, return to the Security menu and repeat Steps 2 through 7 above for one or both passwords.

NOTE	The HP NetServer allows you to reset the password by toggling a switch, position 6, in the Configuration Switch Block on the System board.

Changing Internal Device Boot Priority

You can change the boot priority of the HP NetServer's internal mass storage devices: the CD-ROM, the flexible disk drive (or other removable device), and hard drives connected to the HP NetServer's internal SCSI ports.

1. Select "Boot Settings" from the Configuration menu, using the down-arrow or up-arrow key, and press **Enter**.

   A Boot Settings screen appears, very similar to the one below.

```
Floppy check:              [Disabled]
Summary screen:            [Enabled]
Quick Boot mode:           [Enabled]
➢Boot Device Priority
➢Hard Drive Priority
```

2. Use the down-arrow key to move to the "Boot Device Priority" field.

English

3. Press **Enter** to change the order and a list appears very similar to the one below:

```
1. [CD-ROM]
2. [Flexible Disk]
3. [Hard Drive]
4. [Network Boot]
```

   The list provides the current boot order of the internal device types, including a NIC in the HP NetServer connected to a network with a boot prom. If the [Hard Drive] selection is moved to the top of the boot list, it will use the logical hard drive selected in Steps 5-6 to boot the system.

   a. To change the order, use the up- and down-arrow keys to select one of the device types.

   b. Use the plus (+) or minus (-) keys to move a device type up or down the list.

4. Press **Esc** to exit one level to the Boot Settings menu.

   This moves you back one level to the Boot Settings list shown in Step 1 above.

5. To change the hard driver boot order, scroll to "Hard Drive Priority" and press **Enter**.

   A hard drive (HD) boot list similar to the one below appears on screen depending on the hard drives and bootable cards (DAC or SCSI Disk Controller) boards installed. The system attempts to boot the NOS on the first hard disk drive (or DAC or SCSI board) found in this list. If no NOS is found, the system tries the next logical hard drive in the list until a NOS is found.

```
1. [Bootable Cards]
2. [#30 ID01 LUN0 HP     4.26GB A]
3. [#30 ID02 LUN0 HP     4.26GB A]
```

6. Use the plus (+) or minus (-) keys to move the desired hard drive (or DAC or SCSI board) to the top of the list.

   ◊ The HD boot list has a maximum capacity of eight (8) logical hard drives.

   ◊ If a bootable Disk Array Controller (DAC) or SCSI Disk Controller board is used, the board is seen as a single logical drive.

- ◊ If more than eight logical drives are connected to the HP NetServer, drives 9 and above (including the DAC or SCSI boards and the drives connected to each) will not be recognized by the Setup Utility.
- ◊ You will not be able to enter the Setup Utility to make changes to these logical drives (including DAC and SCSI boards) during the boot process.
- ◊ However, these logical hard drives (including DAC and SCSI boards) will be properly recognized and activated by the respective NOS.
- ◊ For more information about selection guidelines, refer to Information Assistant on the *HP NetServer Online Documentation CD-ROM*.

7. Press **Esc** to exit the Hard Drive Priority menu.
8. Press **Esc** again to exit the Boot Settings menu.
9. Use the right-arrow key to select the **Exit** menu.
10. Choose "Exit Saving Changes" from the list of exit options, then press **Enter**.

    A dialog appears asking you to confirm your decision.
11. Choose "Yes" and press **Enter**.

    Then the HP NetServer reboots.

Clearing CMOS

The Setup Utility does not provide a method of clearing CMOS from within the Utility. To clear the CMOS of the configuration settings, you must use the configuration switch on the system board.

1. Power down the HP NetServer and gain access to the system board.

   Refer to Chapter 3, "Opening and Closing the HP NetServer."
2. On the system board, reset switch 5, on the configuration switch block, from Off (open) to On (closed). See Figure 10-2.

   To locate the configuration switch block on the system board, refer to Chapter 6, "Installing Additional Accessory Boards."

English

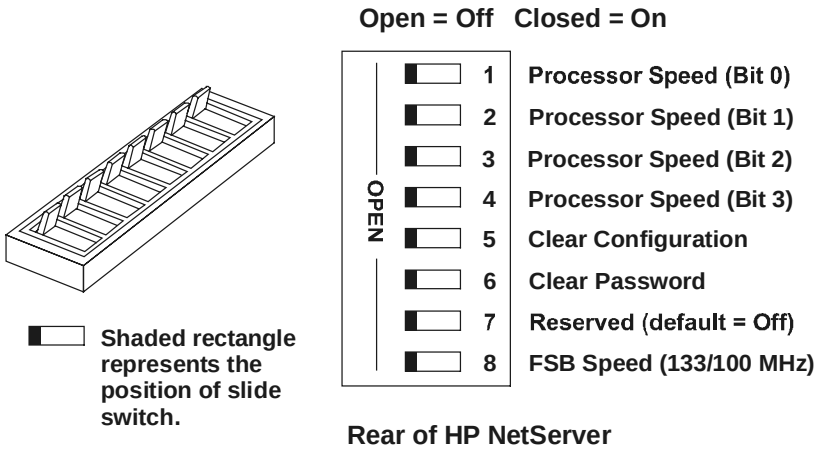

Open = Off Closed = On
OPEN
1 Processor Speed (Bit 0)
2 Processor Speed (Bit 1)
3 Processor Speed (Bit 2)
4 Processor Speed (Bit 3)
5 Clear Configuration
6 Clear Password
7 Reserved (default = Off)
8 FSB Speed (133/100 MHz)
Shaded rectangle represents the position of slide switch.
Rear of HP NetServer

Figure 10-2. Configuration Switch Block - Clearing CMOS

3. Power up the HP NetServer.

   Refer to Chapter 2, "Controls, Ports, and Indicators."

4. Allow the HP NetServer to boot the operating system.
5. Shut down the operating system and power down the HP NetServer.

   Refer to Chapter 2, "Controls, Ports, and Indicators."

6. Reset switch 5 from On (closed) to Off (open) on the system board's configuration switch block. See Figure 10-2.
7. Replace the cover and power up the HP NetServer.

   Refer to Chapter 3, "Opening and Closing the HP NetServer."

SCSI Configuration Utility

If you need to verify or modify SCSI host adapter settings, or if you need to low-level format SCSI disks or verify SCSI disk media, run the Symbios Configuration utility:

1. Turn on or reboot your system.
2. During system start-up or reset, when the following message appears, press the [**CTRL**] and [**C**] keys at the same time.

```
Press [Ctrl] [C] to start Symbios
Configuration Utility
```

3. Use the arrow keys to move the cursor, press [**Enter**] to select an option, and press [**Esc**] to exit.
4. To change adapter settings:
   - ◊ Select an adapter from the list in the main menu.
   - ◊ Select **Adapter Setup**. This option configures the SCSI ID setting and other advanced adapter settings.
5. To format a hard disk or change hard disk parameters:
   - ◊ Select an adapter from the list in the main menu.
   - ◊ Select **Device Selections**.
   - ◊ Select the hard disk to format.
   - ◊ Select **Format** menu option.

For more information, refer to "Information Assistant" on the *HP NetServer Online Documentation CD-ROM*.

Running the Navigator CD-ROM on a Windows PC

Using the HP Navigator CD-ROM in any Windows PC does not allow you to perform any configuration tasks, but it does allow you to view the configuration instructions before or after installing and setting up your HP NetServer. The Navigator CD-ROM will autorun on any PC with Windows 95®, Windows 98®, or Windows NT®.

Contents of the Navigator CD-ROM – Windows PC

The Main Menu provides you with options to view and print configuration information. The menu and submenu buttons are listed here with a brief description for each selection.

- What's New on the CD – This menu selection provides the part number and version of the CD as well as a status report about the systems supported by this CD. It also provides the Internet address for the latest information including release notes about your HP NetServer.
- System README – This file includes the most recent information that was not included in the printed installation documentation.

English

- Guide To Configure Server – This menu selection provides three submenus.
  - ◊ NOS Installation Instructions - This submenu selection provides you with the necessary instructions to install the NOS you have selected for this installation.
  - ◊ Tested Configurations – This menu selection provides two submenus.
    - * Configuration Advisor – This submenu option provides you with important information about such items as driver version compatibility for various hardware and software items, such as NIC and LAN boards or NOS drivers, workarounds for known configuration problems, etc. which will help you complete your installation.
    - * Tested Products List – This submenu option provides you with a list of tested products for the HP NetServer LC 2000/2000r.
  - ◊ Diskette Library – This menu selection provides the same listing of Utilities for the LC 2000/2000r as the Diskette Library in the main menu. You may use this screen to create the required diskettes for "BIOS Update Diskette – LC 2000/2000r," or utilities such as "HP DiagTools."
- Diskette Library – This menu selection provides the same listing of Utilities for the LC 2000/2000r as the Diskette Library submenu option under "Guide to Configure Server." You may use this screen to create the required diskettes for "BIOS Update Diskette – LC 2000," or utilities such as "HP DiagTools." This menu selection is the same one offered by the Navigator CD-ROM if run on the HP NetServer.
- Troubleshooting – This menu selection provides three submenu items.
  - ◊ FAQ (Frequently Asked Questions) – This submenu covers the most often asked questions regarding your HP NetServer and its installation.
  - ◊ DiagTools Diskette – This submenu helps you create the DiagTools Diskette.
  - ◊ Support Web Page – This submenu option takes you directly to the HP Support web page, if your PC has an Internet connection and a browser. If not, it provides you with the current Internet address for HP Support.
- Product Registration - This menu selection opens the Internet connection for registering your HP NetServer and its installation, if your PC has an Internet connection and a browser.

- HP Server Management Solutions – This menu selection provides you with a comprehensive suite of utilities, applications, and built-in features to manage multiple HP NetServers locally or from remote locations. This menu selection is the same one offered by the Navigator CD-ROM if run on the HP NetServer.

Up-to-Date Configuration Details

You can find up-to-date configuration information on the *HP NetServer Navigator CD-ROM*, in "What's New on the CD," in "System README," or in "Guide to Configure Server." Use these sources to learn about applicable compatibility issues and get the latest list of HP-tested peripherals and accessories. Refer to the Test Products List in Configuration Advisor.

These files include the most recent information that was not included in the printed installation documentation. Refer to following procedure to view these files.

1. Ensure the PC is powered on.
2. Press the CD-ROM drive eject button.
3. Place the *HP NetServer Navigator CD-ROM* in the drive, and press the eject button again to close the drive.

   The CD-ROM will start automatically using the auto-run feature as soon as the drive closes.
4. If the CD-ROM does not start automatically, push the eject button on the CD drive and re-insert the CD-ROM.

   The opening screen of the HP Navigator prompts you to select a HP NetServer model.
5. Select the HP NetServer LC 2000 from the pull down list of NetServer models.
6. Press the Continue arrow icon at the bottom right of the screen.

   The next screen appears prompting you to select a NOS (Network Operating System).
7. Scroll down through the list of supported NOS and selected the NOS used with this installation.

   The HP Navigator main menu appears.

English

8. Scroll to "What's New on the CD" in the main menu and read it carefully before beginning your installation.

   You may also use the two icons to "Save to Diskette" or "Print" the information on screen.

9. Close the screen and scroll to "System README" and read it carefully or select of one of the options to save or print it before beginning your installation.

   The System README file contains the latest information to help you install your HP NetServer.

10. Access the other Menu items as required, such as "Configuration Advisor" under "Guide to Configure Server."

    The screens may display all or some of the following icons at the bottom of the screen.

    ◊ Exit – This icon allow you to exit the HP Navigator Program.

    ◊ Toolbox – This icon allows you to launch tools and utilities.

    ◊ Overview – This icon allow you to view configuration details.

    ◊ Help – This icon displays online help for the screen displayed or item selected.

    ◊ Home – This icon allows you to return to the main menu from your present screen.

    ◊ Back – This icon allows you to return to the previous screen.

    ◊ Continue – This icon allows you to continue to the next screen or with the currently selected process.

    ◊ Save to Diskette – This icon allows you to save the contents of the file displayed on screen.

    ◊ Print – This icon allows you to print the contents of the file displayed on screen.

    ◊ Close – This icon allows you to close the screen without taking any actions.

English

11 Information Assistant

Overview

The *HP NetServer Online Documentation CD-ROM* includes Information Assistant, which contains the entire set of documentation for your NetServer.

Information Assistant provides a quick and efficient means to locate information about installing, managing and servicing your NetServer. It has complete documentation on the NetServer and accessories; important information on your NOS; and reference information, such as functional descriptions and technical papers to help you better understand your NetServer and make choices compatible with your network.

Using Information Assistant

Information Assistant has many features that help you quickly find the information you need. The following is a brief description of these features. To understand how to use each function, use the Information Assistant help system.

Restart from the *HP NetServer Online Documentation CD-ROM* on the NetServer and run Information Assistant, or install Information Assistant as an application program on a Windows client machine (see the section "Installing HP Information Assistant Software").

Getting Help

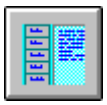
The Help button displays the help system for Information Assistant. The Information Assistant help system explains how to use Information Assistant to find the information you need.

Finding Information

Information Assistant provides many ways to navigate through its topics and locate information. For example, you can:

Select a topic from the Map. Displays a window with an outline of every module and topic in Information Assistant for the selected product. The Map enables you to view the contents of the Information Assistant in outline format, and then select a topic to view.

Search for a word or phrase using Search. Search performs full-text searches for topic text. It not only takes you to the topic found, but highlights the word or words found by the search. You can use search operators such as AND, OR, NOT, and NEAR to further narrow your search.



Select a Product button. Each button represents a product or group of products.

Go to a topic with Previous button. Displays the previous topic in a module.

Go to a topic with Next button. Displays the next topic in a module.

Go to a previously viewed topic with Back button. Displays the previous topic viewed. Clicking this button more than once backtracks through topics in the order that you viewed them.

You can also navigate between topics by using hot spots and by using the History button to revisit previously viewed topics. For example:

- **Jump to other topics**. Click on hot spots in graphics and text that link to other topics or to more information about the current topic. Hot spot text appears as bold green text. Identify hot spots on graphics by moving the pointer over the graphic. When you point to a hot spot, the pointer changes to a hand.
- **Return to any previously viewed topic by choosing History from the Topic menu**. As you view topics, Information Assistant keeps a record of where you have been. The History button displays a list of the topics you have viewed, starting with the most recent. Select any topic from this list to return to it.

English

Copying and Printing Information

You can copy topic text in Information Assistant for use in other applications, such as word processors, by copying text onto the Windows Clipboard and pasting the text into any Windows application.

To print topics in Information Assistant, use one of the print options on the File drop-down menu. You can choose to print the current topic or all of the topics in a product book.

After selecting the print option, the Windows Print dialog box appears. Print options vary with the capabilities of your printer.

Installing HP Information Assistant Software

HP Information Assistant runs on a PC running Windows 3.1 and above, Windows 95 or Windows NT. Install it from the *HP NetServer Online Documentation CD-ROM* onto the client system that will manage the NetServer.

The installation program gives you the option of accessing the data files from your hard disk or from the CD-ROM. The default is to access the data files from the CD-ROM. You can copy the data files to your hard disk to improve access time, but this could take up a significant amount of disk space.

Installing from the CD-ROM

To install Information Assistant onto a Windows PC from the *HP NetServer Online Documentation CD-ROM*, perform these steps:

1. Turn on your computer and CD-ROM drive.
2. Run Windows and display the Program Manager.
3. Insert the *HP NetServer Online Documentation CD-ROM* into the CD-ROM drive.
4. From Program Manager, select the File menu and choose Run.
5. At the command prompt, type the following:

   ***drive*:\infoasst\setup**

   where *drive* is the letter of the CD-ROM drive.
6. Follow the instructions that appear on your screen.

   In Program Manager, the Setup utility creates a new program group called NetServer Information Assistant, with an icon for running the application.

12 Troubleshooting

Troubleshooting Tools

If you are having problems installing your HP NetServer, there are a number of different tools available for troubleshooting.

- HP NetServer Information Assistant (see Chapter 11) contains the following tools:
  - ◊ Troubleshooting Information
  - ◊ Parts Information
  - ◊ List of Error Messages and Beep Codes

WARNING	Before removing the cover, always disconnect the power cord and unplug telephone cables. Disconnect telephone cables to avoid exposure to shock hazard from telephone ringing voltages. Disconnect the power cord to avoid exposure to high energy levels that may cause burns when parts are short-circuited by metal objects such as tools or jewelry. Note that the power switch does NOT turn off the standby power. Disconnect the power cord from the HP NetServer before handling components.

CAUTION	Replace ALL covers before operating the HP NetServer, even for a short time. Otherwise, overheating can damage chips, boards, and mass storage devices.

- HP Navigator contains HP NetServer Utilities. At the Main Menu, select "NetServer Utilities" to use the following tools:
  - ◊ **DiagTools:** An easy-to-use hardware diagnostic for system verification, burn-in, and rapid troubleshooting**.** The DiagTools is located in Diskette Library and must be accessed from two flexible diskettes created from the DiagTools utility listed in the Library.

- ◊ **Event Log Report Utility:** Displays all logged HP NetServer management events, Power-On Self Test (POST) errors and other system events.
- ◊ **More NetServer Utilities>>Diskette Library:** Enables you to conveniently generate any flexible diskette available on the HP Navigator CD-ROM. For example, you can create the following diskettes: BIOS Update, NOS Drivers, and DiagTools.

- For problems with Integrated Remote Assistant, refer to the *HP NetServer Remote Administrator Guide* or Information Assistant.
- For problems with the network interface controller board (NIC), refer to its documentation in Information Assistant.
- For problems with the disk array controller board (DAC), if you have one, refer to the *HP NetRAID Series User Guide for HP NetRAID and HP NetRAID-1* in Information Assistant.
- For problems with HP TopTools, refer to the *HP TopTools Administrator Guide* on the HP Web Site at:

  `http://www.hp.com/toptools`
- For general information on management products, refer to

  `http://www.hp.com/go/netserver`

  and search for "management."

Common Installation Problems

The following sections contain general procedures to help you locate installation problems. If you need assistance, contact your reseller first. If you need to get assistance from Hewlett-Packard, refer to the "Warranty and Service/Support Booklet" for information on service and support.

If the System Will Not Power On

Follow these steps if the Power On/Off/Sleep LED does not turn green after you press the Power On button:

1. Verify all cables and power cords are firmly plugged into the proper receptacles.
2. If the HP NetServer is plugged into a switched multiple-outlet box, ensure the switch on the outlet box is turned on.

English

3. Plug a different electrical device (such as a printer) into the power outlet, and turn it on to check if the fault is with the power supply.
4. Unplug the power cord, wait 20 seconds, plug the power cord in again, and restart the system.

Troubleshooting Sequence

To troubleshoot an installation problem, verify the following preparations before starting the steps listed below:

- First ensure the HP NetServer is properly configured.

  Most system problems are the result of incorrect system and SCSI subsystem configurations.

- If it is a network-related error, determine if the HP NetServer has enough memory and hard disk drive capacity.

  Consult your network operating system (NOS) manual.

- Verify all cables and boards are securely plugged into their appropriate connectors or slots.
- Remove all added options, and always change one thing (and only one thing) at a time.
- Unplug the power cord, wait 20 seconds, plug the power cord in again, and restart the system.

NOTE	If the HP NetServer has a large amount of memory installed, it may take up to one minute for the first screen to display.

If you suspect a hardware error, follow these steps:

1. Log users off the LAN and power down the HP NetServer.
2. Remove the front bezel, and the top or side cover.
3. Simplify the HP NetServer configuration to the minimum required:
   - ◊ monitor
   - ◊ one flexible disk drive
   - ◊ one CD-ROM drive
   - ◊ keyboard
   - ◊ mouse
   - ◊ NIC (embedded)

4. Remove all third-party options, and reinstall one at a time, checking the system after each installation.
5. Replace all covers, and reconnect the power cord and other cables.
6. Restart the NetServer.

   If the system does not function, refer to one of the following sections, depending upon the message displayed:

   ◊ "Error Message Is Displayed"

   ◊ "No Error Message Displayed"
7. If the system will still not restart, clear the system configuration and restart the system, as described in "Clearing the System Configuration."

Error Message Is Displayed

There are two types of error messages displayed on the monitor that may indicate why the HP NetServer is not booting. These are:

- Highlighted error messages (white text on gray background).

  Press **Enter** to see a definition of the message and what action to take to remedy the problem.
- Error messages displayed in normal video.

  If an HP NetServer configuration error is reported during the startup routine, clear the system configuration memory and reconfigure as described under "Clearing the System Configuration," and restart the HP NetServer.

Power On Self Test (POST) Error Messages

Use these steps to check hardware POST errors, when displayed.

1. If an error occurs during the power-on self test (POST), press **Enter** to view system error to display details of the error.

   The POST process occurs when the HP NetServer boots.
2. Follow the instructions on the screen.
3. Correct the error before proceeding, even if the HP NetServer appears to start successfully.
4. If the HP NetServer starts, but the POST hardware test still reports an error message, clear the system configuration memory, as described in "Clearing the System Configuration."

English

The following table describes common errors and the corrective action you may take to remedy the problem:

Table 12-1. POST Error Messages

Message	Corrective Action
Operating system not found	Check whether the drive from which you are booting has the power and SCSI flat cables connected. Verify that the SCSI cable is securely plugged into the SCSI controller board. Narrow (50-pin) SCSI devices require the wide-to-narrow SCSI adapter with the white body on the SCSI cable.
	Check that the boot device is enabled in the Hardware Security submenu under the Security menu of the Setup Utility. If possible, check the drive by moving it to another system. If the problem persists, contact your service and support organization.
	Verify that the boot device has an operating system installed.
Keyboard error	Check that the keyboard is connected to the correct connector (**not the mouse connector**) at the rear of the system.
	Replace the keyboard. If the problem persists, contact your service and support organization.
Mouse error	Check that the mouse is connected to the correct connector (**not the keyboard connector**) at the rear of the system.
	Replace the mouse. If the problem persists, contact your service and support organization.
Incorrect System Configuration	Press the **F2** key to run the Setup Utility. Change settings as required. Press the **F10** function key to exit, and answer "Yes" to save the changes.

No Error Messages Displayed

If a POST error is detected before the video display starts, a beep error message may be generated. If so, refer to the list of Beep Codes in Information Assistant.

General Checks

1. All external cables and power cables are firmly plugged in.

2. The power outlet is working.
3. The NetServer and monitor are turned on.

   (The power-on indicator should be illuminated.)
4. The display's contrast and brightness settings are correct.
5. All internal cables are properly connected, and all boards are firmly seated.
6. Verify the power and data cables are properly connected to the system board.
7. Verify the primary CPU module is fully seated in the lower (primary) CPU socket on the system board.
8. Also verify the system board retaining latches are fully latched.
9. Verify the terminator board or the second CPU module is fully seated in the upper (secondary) CPU socket on the system board.
10. Also verify the system board retaining latches are fully latched.
11. Verify the voltage regulator module (VRM) is fully seated in the lower VRM socket on the system board.
12. If two CPU modules are installed, verify both VRMs are fully seated.

    See the Technical Reference Label inside the top cover for the location of the VRM(s).

NOTE	A VRM module is required for each processor module (CPU) installed. Install a VRM next to each installed processor.

After Installing an Accessory

1. Turn off the HP NetServer, monitor, and any external devices.
2. Unplug all cables from the power outlet.
3. Remove the front bezel and left side cover (or top cover).
4. Check the following:
   - ◊ If you have installed an accessory board, verify the board is firmly seated in its slot and any switches or jumpers on the accessory board are properly set. Refer to the manuals provided with the board.
   - ◊ Verify the processor module, terminator board, and VRM are seated properly in the correct positions, as listed above in "General Checks."

English

- ◊ Verify all DIMMs are HP-supplied and are seated properly. The boot screen provides information on the installed DIMMs.
- ◊ Verify all internal cabling and connections.
- ◊ If you have changed any switches on the system board, verify the switches are properly set.

5. Replace the cover and front bezel, and connect all cables.
6. Turn on the display and HP NetServer.
7. If the HP NetServer still does not work:
   - ◊ Repeat steps 1, 2, and 3 of this section.
   - ◊ Remove all accessories, except the primary boot hard disk drive.
   - ◊ Replace the covers and connect all cables.
   - ◊ Turn on the display and the HP NetServer.
   - ◊ If the HP NetServer now works, replace the boards and accessories one at a time to determine which one is causing the problem.

Clearing the System Configuration

You may need to clear the system configuration if the configuration has been corrupted, or if incorrect settings made in the Setup Utility have made the display unreadable.

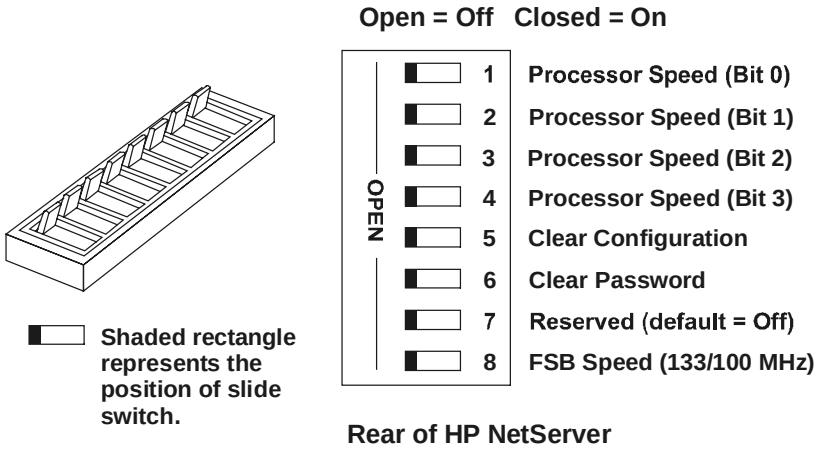

Open = Off Closed = On
OPEN
1 Processor Speed (Bit 0)
2 Processor Speed (Bit 1)
3 Processor Speed (Bit 2)
4 Processor Speed (Bit 3)
5 Clear Configuration
6 Clear Password
7 Reserved (default = Off)
8 FSB Speed (133/100 MHz)
Shaded rectangle represents the position of slide switch.
Rear of HP NetServer

Figure 12-1. System Switch Positions

To clear the system configuration on the System Board:

1. Turn off power to the HP NetServer, and unplug the power cord.
2. Remove the front bezel and left side cover (or top cover).

   Refer to Figures 12-1, 12-2, and the Technical Reference Label.
3. Move the configuration memory switch, switch 5 on the system board, to the "ON = Clear Config" position.
4. Plug in the power cord, and turn on power to the HP NetServer.

   The following message is displayed:

   ```
   Configuration has been cleared, set Clear
   Config switch to the OFF position before
   rebooting
   ```
5. Turn off power to the HP NetServer, and unplug the power cord.
6. Return switch 5 on the system board to the OFF position.
7. Replace the left side cover (or top cover), and the front bezel, and plug in the power cord.
8. Turn on power to the HP NetServer and the following error message may be displayed.

   ```
   0012-34 : Incorrect System Configuration
   ```

   If the error message above is displayed, it is followed by the explanation message below. This is normal operation when clearing CMOS.

   ```
   The BIOS has detected a serious problem
   that prevents your PC from booting
   ```
9. Press the **F2** key to run the Setup Utility.
10. Make any required configuration changes.
11. Press the **F10** function key and answer "Yes" to save the configuration and exit the Setup Utility.

English

Hardware Problems

This section describes what to do if you have problems with your display, mass storage devices, printer, accessory boards, keyboard, or mouse.

Display Does Not Work

NOTE If the HP NetServer has a large amount of memory installed, it may take one minute for the first screen to display.

1. If nothing is displayed on the screen, but the HP NetServer starts and the keyboard, flexible disk drive, other disk drives, and other peripheral devices seem to operate properly, do the following:
   - ◊ Verify the monitor is plugged in and power is turned on.
   - ◊ Verify the brightness and contrast controls of the display are properly set.
   - ◊ Verify the display video cable is securely connected to the NetServer.
   - ◊ Turn off the display and NetServer, and unplug each power cord from the power outlet.
   - ◊ Disconnect the video cable from the NetServer and examine the video cable connector pins to see if any are bent.
   - ◊ If you find bent pins, carefully straighten each one.
   - ◊ Reconnect the video cable and all power cords and turn on the display and NetServer.
   - ◊ If you have manually configured any accessories, verify none use the same I/O address as the integrated video interface (03B0h to 03DFh).

     Refer to the documentation supplied with the accessories you configured for more information.
2. If the display image does not align with the screen (usually after you have changed the resolution), use the display's controls to center the image.

   Refer to the display's manual for information about the controls.
3. If the screens generated by the applications do not look right, check the application manual to find out which video standard is required.
4. If the screen goes blank after the HP NetServer has booted, contact your HP support organization.
5. If the screen is blank, video blanking may be enabled.

6. If the keyboard lock LED is illuminated, type the password to disable video blanking.
7. If a video board is installed in an accessory slot, contact the manufacturer of the video board.

Keyboard or Mouse Do Not Work

1. Verify the keyboard and mouse are connected to the correct ports.

   Refer to Chapter 2, "Controls, Ports, and Indicators" and the I/O panel label on the rear panel of the HP NetServer.
2. For a mouse error, verify the mouse is configured correctly in the "Keyboard and Mouse Settings" submenu under the Configuration menu in the Setup Utility.
3. If the screen is blank and the password is enabled, type the password.
4. Clean the mouse ball and rollers by using a lint-free cloth.
5. If the screen is blank, video blanking may be enabled.
6. If the keyboard lock LED is illuminated, type the password to disable video blanking.

CD-ROM Drive Does Not Work

1. Verify a CD-ROM is inserted in the drive.
2. Verify the power and data cables are correctly connected to the device.
3. If you intend to boot from the CD-ROM, ensure the **Start from CD-ROM** is enabled in the "Hardware Security" submenu located under the "Security" menu in the Setup Utility.

   For further information, see your CD-ROM documentation.
4. If the screen is blank and the keyboard lock LED is illuminated, video blanking may be enabled.
5. Type the password to disable video blanking.

English

Hard Disk Drives Do Not Work

If error messages displayed on the monitor indicate a hard disk failure, perform these checks:

1. Verify the power cable is securely connected to the drive, the flat SCSI cable is securely connected to the drive or to the SCSI connector on the card cage backplane.

   For a narrow (50-pin) SCSI device, use the wide-to-narrow SCSI adapter with the white body on the terminated SCSI cable.

2. Verify all SCSI devices have unique SCSI IDs.

   Refer to the Technical Reference Label on the inside the top cover or Information Assistant for more details on setting SCSI IDs.

3. If you intend to boot from the hard disk drive, ensure **Start from Hard Disk** is enabled in the "Hardware Security" submenu located under the "Security" menu in the Setup Utility.

4. Verify the SCSI ID of the hard disk drive is in the correct boot order.

   Refer to the HP NetServer Hard Disk Drive Troubleshooting Guide on the HP Web Site at:
   `http://www.hp.com/netserver/servsup/trouble/` .

Password Problems

If you have forgotten the password, your HP NetServer will function normally, but you will not be able to change the system configuration settings in the Setup Utility. To reset the password:

1. Turn off power to the HP NetServer, and unplug the power cord.
2. Remove the front bezel and left side cover (or top cover).
3. Refer to Figures 12-1 and 12-2, and move switch 6 on the system board (labeled "Clear Password") to the ON position.
4. Plug in the power cord, turn on power to the HP NetServer, and allow it to complete its startup routine.

   The old password will be erased.

5. Turn off power to the HP NetServer, and unplug the power cord.
6. Return switch 6 on the system board to the OFF position.
7. Replace the cover and front bezel.

8. Plug in the power cord, turn on power to the HP NetServer, and allow it to complete its startup routine.
9. If you wish to set the password again, during the power-on system hardware test press the **F2** function key to start the Setup Utility.
10. Set the new password in the Security menu.
11. Press the **F10** function key and answer "Yes" to save the configuration, including the new password, and exit the Setup Utility.

Battery Problems

If your HP NetServer repeatedly loses its configuration or the CPU clock stops, you should replace the battery.

WARNING	There is a danger of explosion if the battery is incorrectly installed. For your safety, never attempt to recharge, disassemble, or burn the old battery. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries safely.

To install a battery replacement, refer to the following procedure.

1. Turn off power to the HP NetServer, and unplug the power cord or power cords.

   Refer to Chapter 2, "Controls, Ports, and Indicators."

2. Remove the front bezel and left side cover (or top cover).

   Refer to Chapter 3, "Opening and Closing the HP NetServer."

3. Remove the old battery, which is shown in Figure 12-2.

English

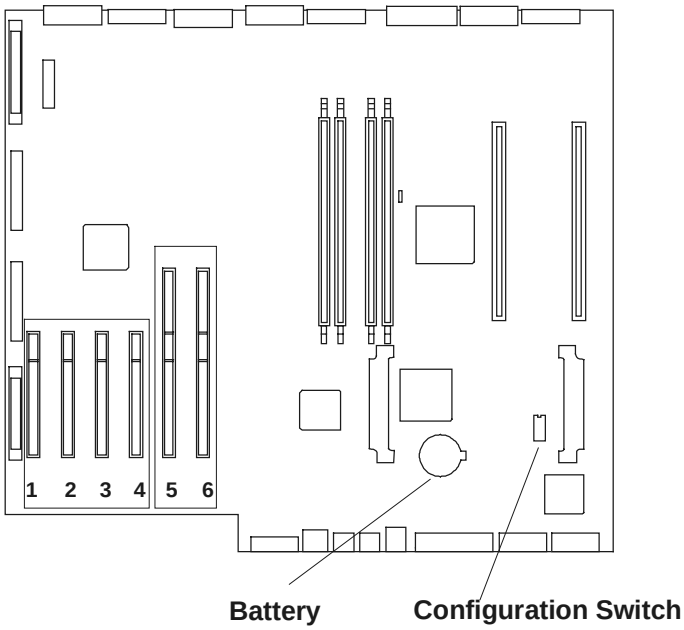


Figure 12-2. Battery on System Board

4. Insert the new battery with the positive sign (+) facing out, and ensure it is seated completely.
5. Verify the retaining clip is in place, and holds the battery firmly.
6. Replace the left side cover (or top cover) and the front bezel, and reconnect the power cord.

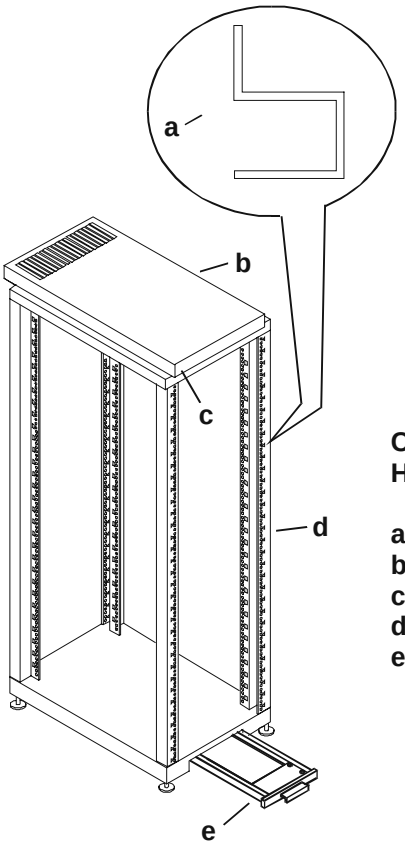
   Refer to Chapter 3, "Opening and Closing the HP NetServer."
7. Restore power to the HP NetServer according to the respective NOS's power up instructions.
8. Reset the Date and Time in the Setup Utility.

   Refer to Chapter 10, "Configuring the HP NetServer."

13 Alternative Rack Mounting

Introduction

This chapter provides the instructions for mounting the HP NetServer in an HP Systems rack. Figure 13-1 shows the Systems rack. If you have the newer HP System/E or System/U racks, go to Chapter 8. If you are mounting the NetServer in a non-HP rack, see the documentation in the appropriate rack accessory kit.



Characteristics of HP System Rack:

a. 3-Cornered Columns
b. Fan-Only Vent
c. "HP Systems" Name Plate
d. EIA Units Marked by Triangles
e. Anti-Tip Foot Extends Out Front Only

Figure 13-1. HP System Rack

The HP NetServer LC 2000r rack mount kit requires five EIA units of space in the rack. Before mounting the NetServer, plan for the NetServer's location in the rack relative to other rack components. Proper placement is vital both for safety and operating efficiency. For more details, see the *Rack Installation Road Map* and the *HP NetServer LC 2000r Rack Cabling Reference Guide*.

NOTE	If the HP NetServer is completely configured by the vendor before delivery to the customer, then mounting the HP NetServer in the rack may be the final step in the installation procedure. If the vendor configures the HP NetServer at the customer's site, installation of the network operating system and other software may occur after the HP NetServer is mounted in the rack.

CAUTION	The HP NetServer weighs 80 lbs. (36 kg). To avoid accidents, use two people when placing the HP NetServer into the rack. If other rack components are to be mounted in the rack below the HP NetServer, install those components before starting to mount the NetServer.

Tools Required

You need these tools to mount the HP NetServer in the rack:

- Nut driver or wrench
- T-15 and T-25 Torx Drivers
- Number 2 Phillips screwdriver
- Marking pen

English

Safety Precautions

Always keep the following safety and environmental issues in mind, especially if you install the HP NetServer in a non-HP rack environment:

- **Optimum Operating Environment** – The optimum operating conditions for the HP NetServer is in an environmental controlled computer room with a temperature range of 20 to 22°C (68 to 72°F) at 40 to 60% relative humidity.
- **Maximum Ambient Temperature** – Ensure the maximum ambient temperature does not exceed 35°C (95° F).
- **Elevated Operating Ambient Temperature** – The ambient operating temperature within a closed or multi-unit rack assembly may exceed the room's ambient temperature. Ensure the temperature within the rack itself does not exceed 35°C (95° F).
- **Reduced Air Flow** – As you mount equipment in the rack, ensure you allow enough air flow for safe operation of the equipment. The NetServer's fans will only operate correctly if both front and rear doors of the rack allow free air flow (perforated openings), or are removed.
- **Mechanical Loading** – Uneven mechanical loading within the rack can cause hazardous conditions. To prevent this in your installation plans, place the heaviest components in the bottom of the rack, mounting all components as low in the rack as is practical.
- **Circuit Overloading** – Ensure the total configuration of equipment in the rack does not overload the supply circuit. To this end, check the nameplate ratings on all equipment. Consider the effect of circuit overloading on overcurrent protection and supply wiring.
- **Reliable Earth Grounding** – Maintain reliable grounding of rack-mounted equipment. Give particular attention to supply connections not directly connected to the branch circuit: such as, using non-HP power strips.

Preparing the Rack

The column adapters and the slide mechanism must be connected to the rack before installing the HP NetServer LC 2000r into the rack. A cardboard rack-mounting template comes with the HP NetServer. This template shows you where to mount the column adapters and slides on the rack.

HP NetServer Rack Mount Parts List

Ensure the rack-mounting kit provided with the HP NetServer contains the following parts:

Table 13-1. Parts for Rack Mount Kit

Quantity	Description
2	Slides
4	Rack Nuts
12	Rack Nut Screws (M5 x 16mm)
6	Screws for Slides (8-32 x ¼ inch, 2 flathead, 4 panhead)
2	Column Adapters
1	Template

Mounting Column Adapters

Use this section to connect the two column adapters to the HP Systems rack, which are required for the Universal Bezel. The rack template and marking pen are used to identify and mark the locations for the column adapters. The column adapters attach to the front columns using the captive screws on the column adapters and don't require any rack nuts.

CAUTION	If other rack components are to be mounted in the rack below the HP NetServer, install those components before starting to mount the NetServer.

NOTE	Use the *HP Rack Configuration Tools* to determine where in the rack to mount the HP NetServer.

English

1. Find the rack-mounting template for the HP Systems rack.

   If the HP NetServer is still in its box, the template should be in the accessories tray sitting on top of the NetServer itself.

2. Hold the template alongside the outside face (front) of the left front rack column.

3. Line up the bottom of the template with the lower line of space the NetServer will occupy.

   The template covers a span of 5 EIA units, which is the height requirement of the NetServer.

4. Use the marking pen to mark the 2nd and 14th holes on both front columns, as shown on the template. See Figure 13-2.

5. If you don't have the template, use the markings shown in Figure 13-2 for the column adapters on the front columns.

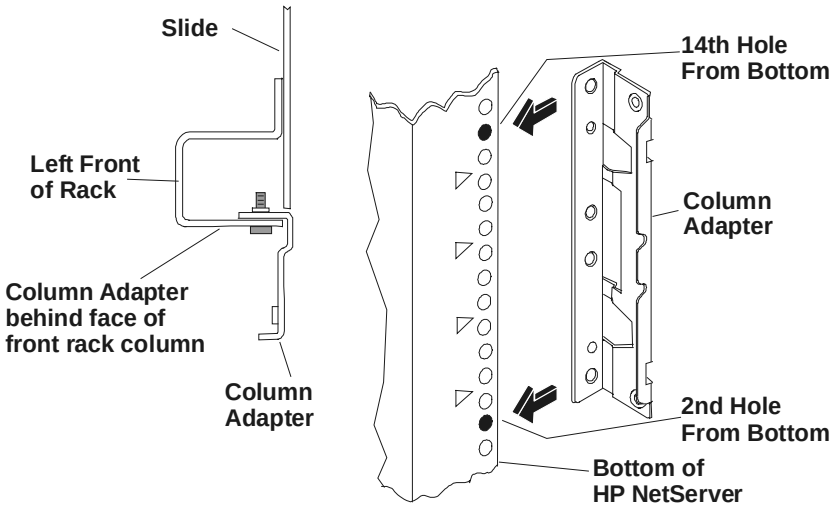


Figure 13-2. Rack Nut Placement on Front Rack Columns

6. Place the column adapter mounting holes behind the face (2nd & 14th), and insert two screws (M5) through the holes in the column into the captive nuts on the column adapter. See Figure 13-2.

7. Repeat steps 2 through 6 for the right front rack and tighten all four screws.

Attaching the Slides to the Rack

This section provides the instructions for connecting the mounting slides to the rack. The slides' mounting flanges are not used in the HP System Rack and must be detached before fastening the mounting slides in the rack. Instead of the flanges, the studs on the slide are inserted in holes on the inside face (the side) of the rack columns.

1. Use a nut driver or wrench to detach the two mounting flanges from each slide. See Figure 13-3.

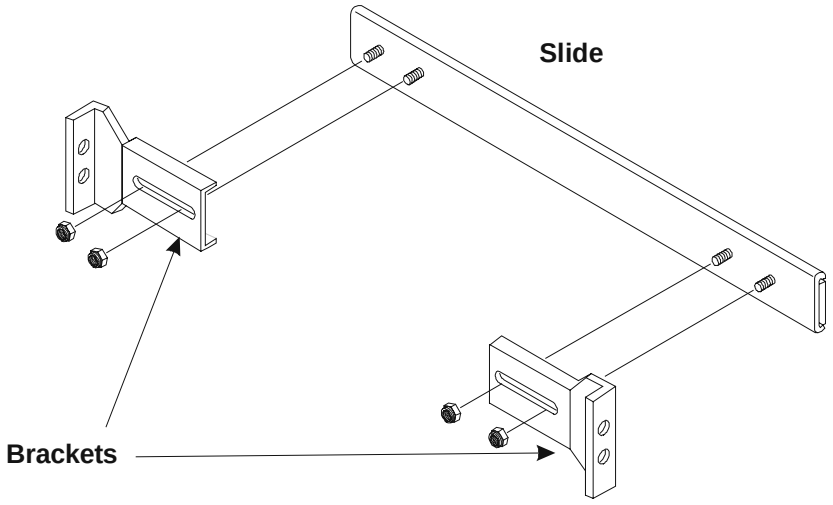


Figure 13-3. Removing the Slides' Mounting Flanges

2. Pull the anti-tip foot forward out of the bottom of the rack.
3. Hold the template alongside the inside face (side) of the left-front rack column.
4. Line up the template with the bottom line of the rack space the NetServer will occupy.

   The template covers a span of 5 EIA units, which is the height requirement of the NetServer.

5. Mark the single hole indicated by the template for future reference.

   The template directs you to a single hole in the rack column used for mounting the slide.

English

6. If you don't have the template, use the markings shown in Figure 13-4 to determine which hole on the column the slide mounts through.

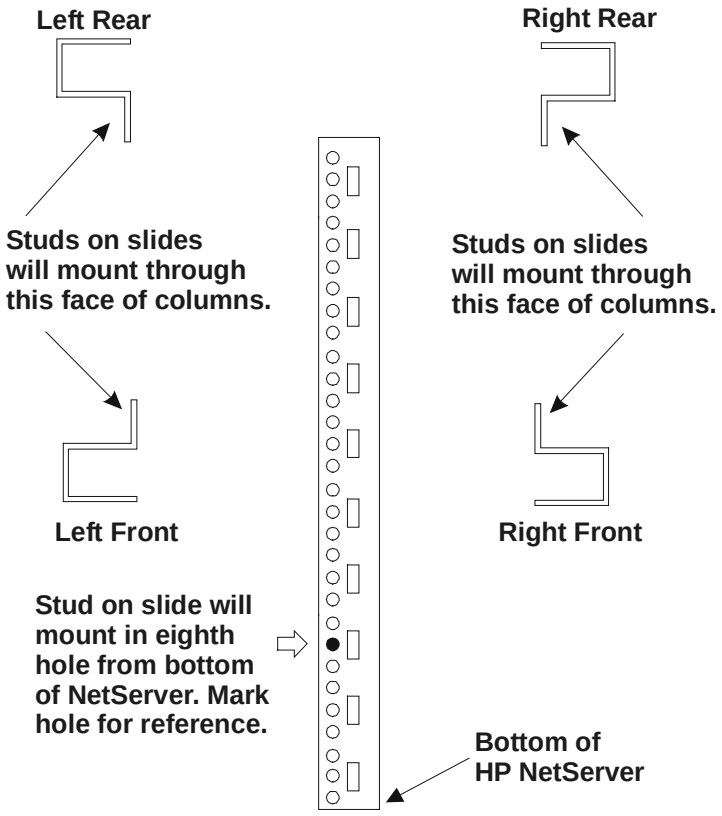

Left Rear
Right Rear
Studs on slides will mount through this face of columns.
Studs on slides will mount through this face of columns.
Left Front
Right Front
Stud on slide will mount in eighth hole from bottom of NetServer. Mark hole for reference.
Bottom of HP NetServer

Figure 13-4. Mounting Hole Placement for the Slides

7. Hold the template alongside the inside face of the left-rear rack column.
8. Mark the single hole indicated by the template for future reference.

   The template directs you to a single rack-column hole on the left-rear rack column.
9. Attach a slide to the left-front and left-rear columns:
   a. Position the slide inside the left-front and left-rear rack columns. See Figure 13-5.
   b. Ensure the front end of the slide -- the extending end when pulled -- faces the front of the rack.

c. Insert the slide's two threaded studs into the marked holes on the sides of the left-front and left-rear rack columns. See Figures 13-4 and 13-5.

d. Tighten the nuts on both screws.

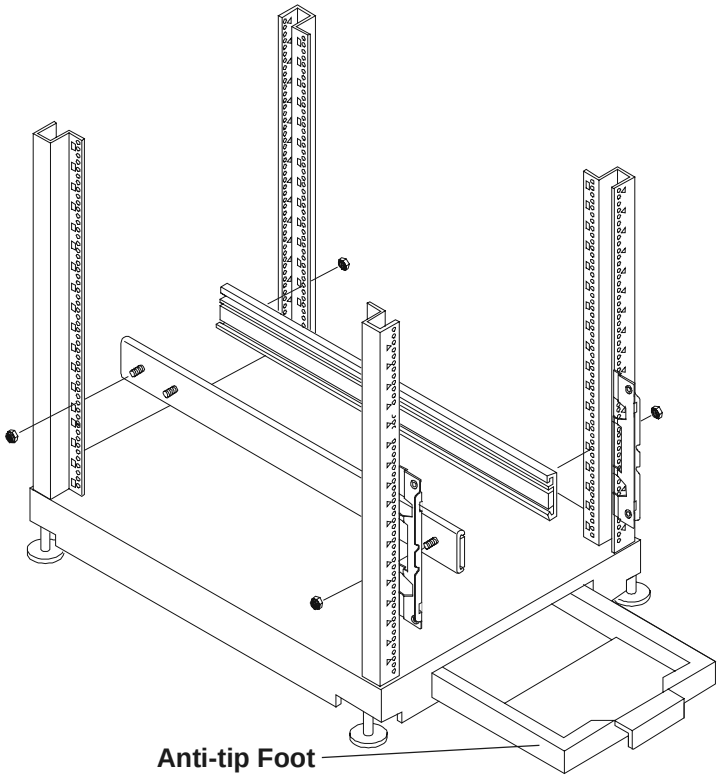


Figure 13-5. Securing the Slides to the Rack

10. Repeat Steps 1 through 9, and attach the other slide to the right-front and right-rear rack columns.

English

Placing the HP NetServer in the Rack

Use this topic to place the HP NetServer safely in the rack. The following topics provide instruction for installing the Cable Management Arm and Bezel.

WARNING	To prevent rack instability while mounting the HP NetServer pull the rack's anti-tip foot forward out of the bottom. Failure to do so could result in injury and equipment damage. To prevent the rack from rolling while you mount the HP NetServer, ensure the leveler screws on the rack's lower four corners are in firm contact with the floor. See Figure 13-6.

1. Lower the leveler screws on the rack's lower four corners to make firm contact with the floor. See Figure 13-6.
2. Ensure you have extended the anti-tip foot from the rack, before continuing this procedure. See Figure 13-6.

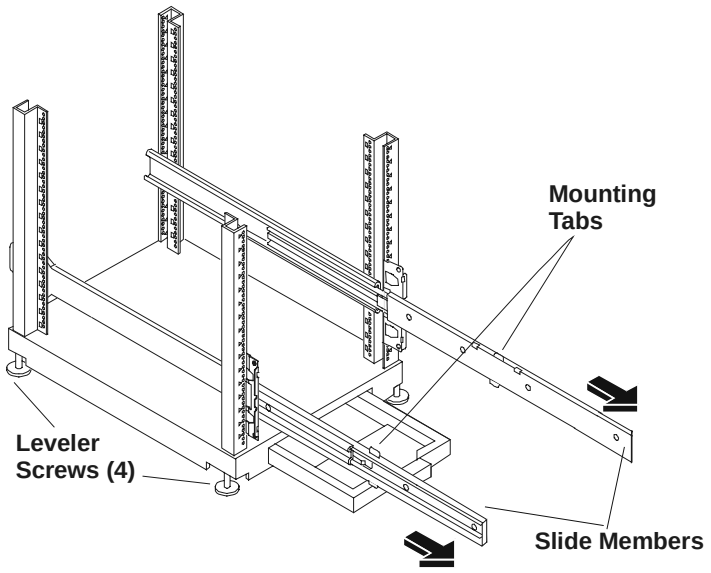


Figure 13-6. Pulling Out the Slides

3. Pull out both slides until the slide members are fully extended. See Figure 13-6.

The slides click into position when locked. This locked position prevents the slides from moving back into the rack, unless the release latches are pressed as shown in Figure 13-9.

CAUTION	The HP NetServer weighs 80 lbs. (36 kg). To avoid accidents, use two people when placing the HP NetServer into the rack.

4. With the help of at least one other person, lift the NetServer by its four handles.
5. Move the rear of the NetServer just beyond the extended slide members.
6. Position the NetServer's channels on each side to insert the slide members into the channels. See Figure 13-7.
7. Move the slide members into the NetServer's channels until both slide members are underneath all four of the NetServer's handles, including the mounting tabs. See Figures 13-7 and 13-8.

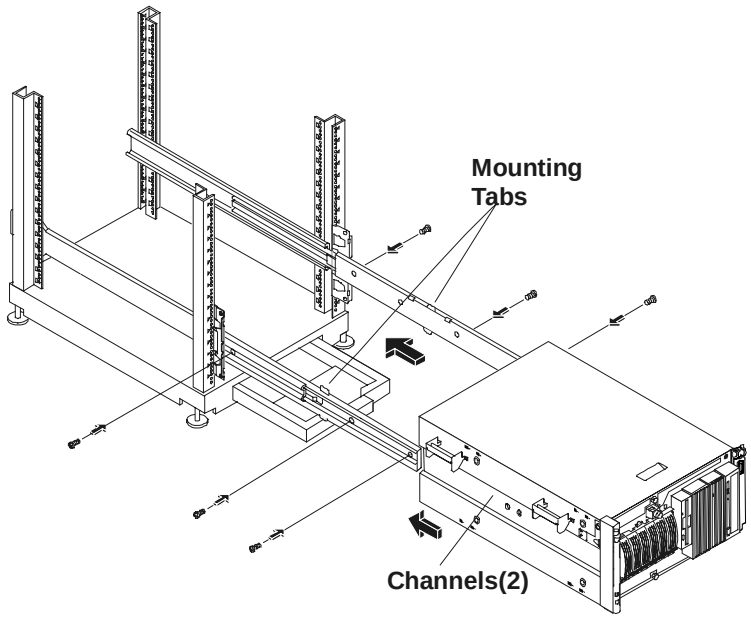


Figure 13-7. Mounting the Chassis on the Slides

English

The mounting tabs in the slides should be in position to fit into the openings in chassis. See Figures 13-6 and 13-7.

8. Lower the NetServer onto the slide members.

   The NetServer's handles will temporarily support the NetServer on the slides.

9. Adjust the NetServer's position on the slides to line up the 6 mounting holes on the side (3 each) of the chassis with the screw holes in the slide members.

10. Insert the flathead screws into the slides' holes at the rear and the panheads screws in the other four places to secure the chassis to the slides.

11. Use a Torx T-15 driver to remove the screws holding the handles to the NetServer. See Figure 13-8.

12. Take the handles off the NetServer and store the handles and screws in a convenient place.

    The handles can be re-attached whenever you remove the NetServer from the rack. If moving the NetServer elsewhere, always package it with the handles attached.

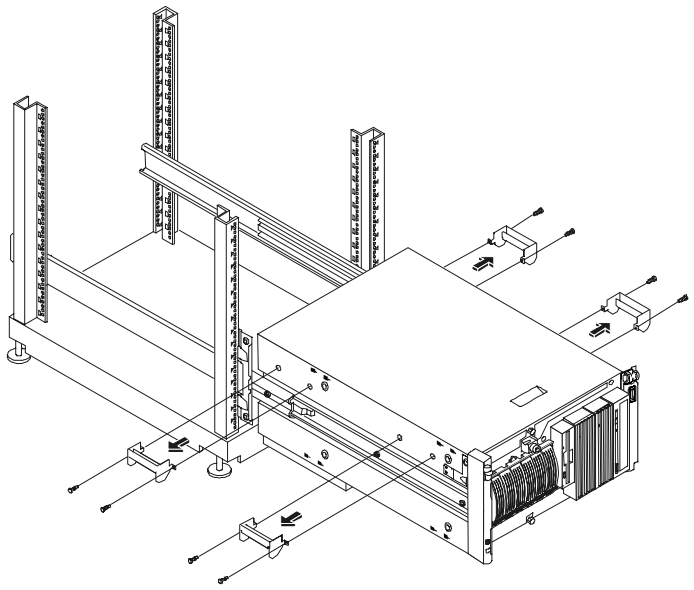


Figure 13-8. Removing the Mounting Handles

13. Press in the release latches on each slide, and push the NetServer all the way back into the rack. See Figure 13-9.

    The blue Slide Release buttons in the Bezel moldings on each side of chassis's front edge must click into the latches in the column adapters on the two front rack columns.

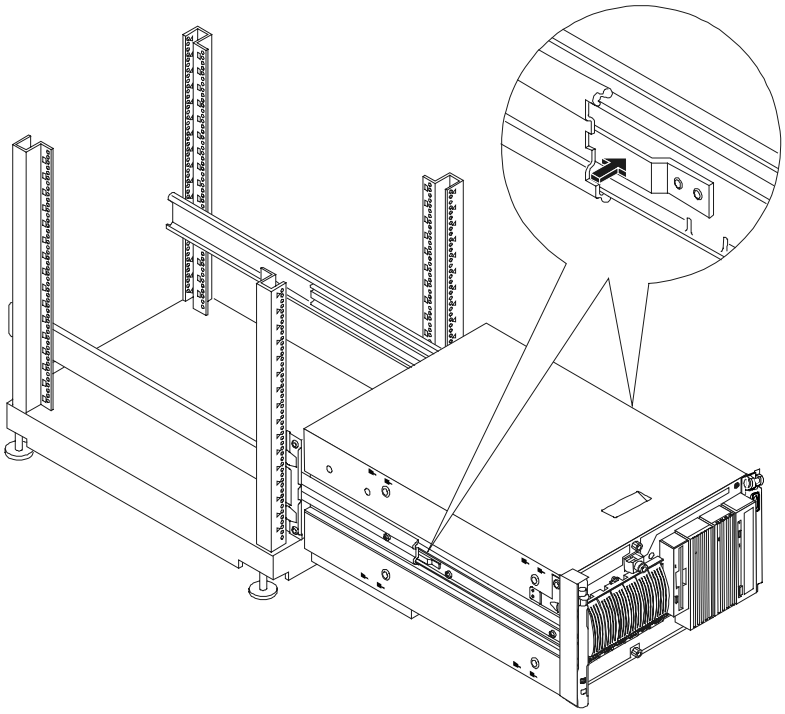


Figure 13-9. Pressing in the Release Latches

14. Verify the NetServer will slide all the way into the rack, before continuing with the procedures.
15. Go to "Attaching the Cable Management Arm" before securing the HP NetServer in the rack.

English

Attaching the Cable Management Arm

Use this procedure to mount the Cable Management Arm on the HP NetServer LC 2000r when mounted in the HP System racks. The HP NetServer LC 2000r's Cable Management Arm allows the cables, including the power cord, to move in and out with the HP NetServer chassis without being accidentally disconnected. See Figure 13-10.

WARNING	Before sliding out the HP NetServer LC 2000r, ensure the anti-tip foot is still extended from the front of the rack. A tip-over hazard exists, so never slide more than one component out of the rack at a time.

1. Ensure the HP NetServer LC 2000r is pushed all the way into the rack.
2. At the rear of the HP NetServer, place rack nuts on the left column in the 12th and 14th holes above the baseline (bottom) of the NetServer. See Figure 13-10.

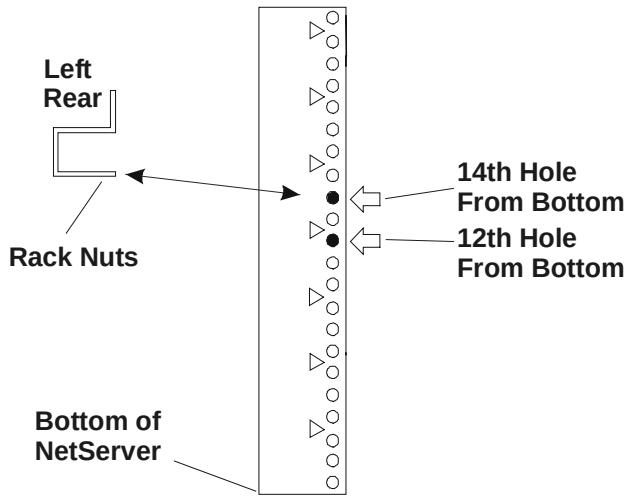


Figure 13-10. Attaching the Rack Nuts to the Left Column

3. Orient the cable management arm as shown in Figure 13-11.
4. Match the inner flange mounting holes with the two captive nuts at the rear of the NetServer. See Figure 13-11.

The captive nuts are located near the external SCSI Connector (knockout) location.

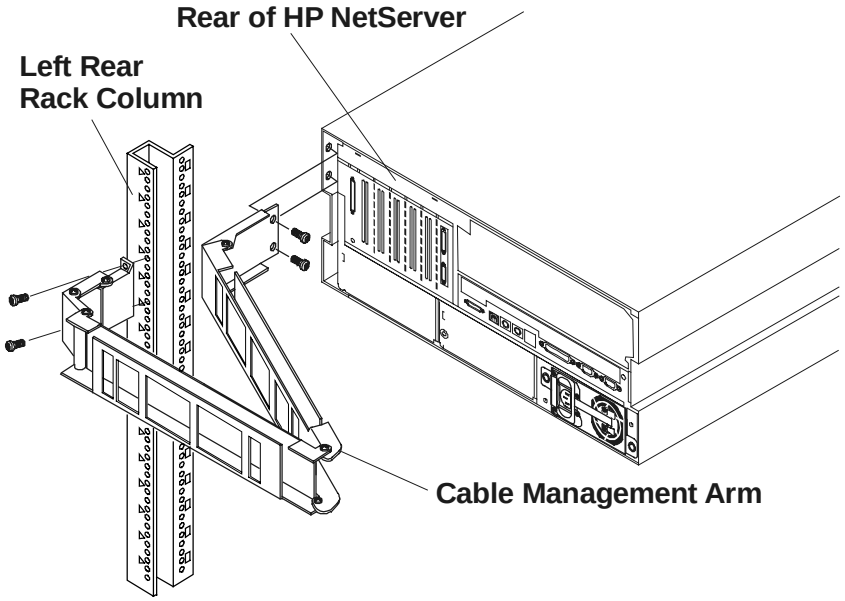


Figure 13-11. Attaching the Cable Management Arm

5. Attach the other flange of the cable arm to the rear column of the rack with the two M-5 pan head T-25 Torx screws, included with the Arm.
6. Attach the flange to the NetServer with the two 8-32 pan head Torx T-20 screws, included with the Arm. See Figure 13-11.
7. Extend the NetServer out of the rack to ensure the Cable Management Arm moves along with the chassis without binding.

NOTE Refer to the *HP NetServer LC 2000r Rack Cabling Reference Guide*, for information about cable dressing and routing.

8. If the Cable Management Arm moves with the chassis and the rack installation appears to be successful, slide the NetServer into the rack.

   The NetServer should click into the latch on the two column adapters.
9. If the NetServer is not in a restricted-access area, tighten both slide securing screws on the bezel latching mechanisms. See Figure 13-12.

English

10. Plug the NetServer's power cable and all available data cables into the back of the NetServer.

Attaching the Front Bezel

The front bezel attaches to the HP NetServer by a hinge on the left and a catch on the right. The hinge has three spring-loaded hinge pins to secure the bezel. The bezel is held in place on the right with a catch allowing the bezel to swing open when pulled from the right. The chassis is shipped with the bezel hinge and latch in place. The column adapters are the only items requiring installation on the rack, which is done before mounting the rack slides.

1. Position the Bezel in front of the HP NetServer LC 2000r as shown in Figure 13-12.

   The hinge pins must be pushed down with the blue Bezel Release tab shown in Figure 13-12 to engage the hinge pins. When the Blue Tab is released, the spring loaded hinge pins move up to grasp the bezel holding it in place. The open bezel is then swung closed on the right to engage the catch. See Figure 13-13.

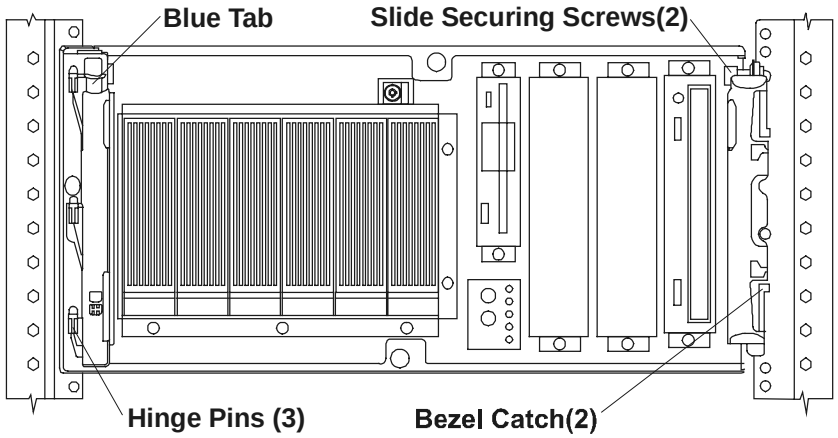


Figure 13-12. Hinge Pins and Blue Bezel Release Tab

2. Press down on the blue Bezel Release tab shown in Figure 13-12.

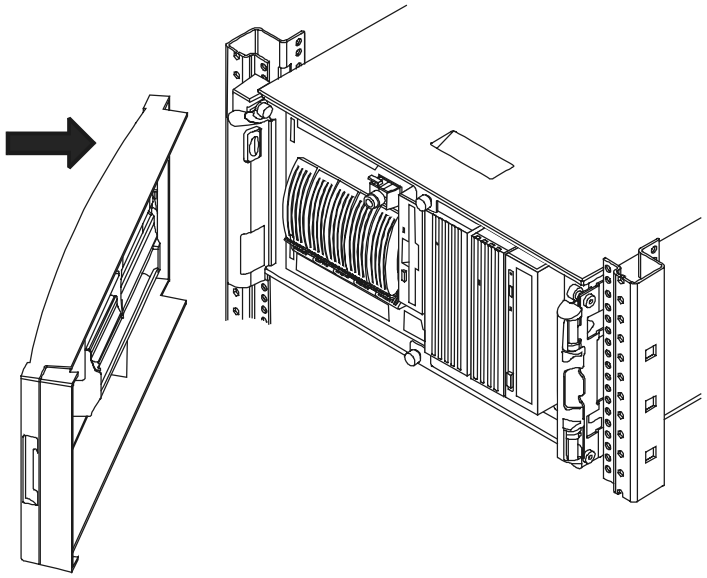


Figure 13-13. Attaching the Bezel to the NetServer

3. Press the bezel onto the front of the HP NetServer and release the Blue Tab to engage the hinge pins. See Figures 13-12 and 13-13.
4. Swing the open bezel to the right to engage the catch and close the bezel.

Continuing with the Rack Installation Process

After you install the HP NetServer in the rack, refer to the *HP Rack Installation Road Map* to continue with the process of installing and configuring your HP rack system.

A Specifications

Power Requirements

Table A-1. HP NetServer LC 2000/2000r Input Power

Input Voltage and Frequency	100-240 VAC ± 10%; 50/60 Hz
Maximum inrush current	8 AMPs peak (for 1 power supply) 120 VAC or 32 AMPs peak (2 power supplies) 16 AMPs peak (for 1 power supply) 240 VAC or 32 AMPs peak (2 power supplies)
Delayed action circuit breaker recommended	North America: a 20 A minimum delayed action circuit recommended for each 16 A power distribution unit (PDU) that is connected to an HP NetServer LC 2000/2000r. Europe (single server in a rack): use a 16 A-minimum circuit with one IEC MCB C-type breaker for each 16-Amp PDU. Europe (multiple servers in a rack): use a 16-amp-minimum circuit with one IEC MCB D-type breaker for each 16 A PDU.

NOTE Some local codes do not allow 16-amp service for a 16-amp device. Consult a qualified electrician or local regulatory authority before beginning electrical site preparation.

Table A-2. HP NetServer LC 2000/2000r Power Ratings

AC Input Voltages	Maximum Input Power (VA)	Maximum Input Power (W)	Maximum Operating Current RMS (AMPS)
100 VAC	545	540	5.5
120 VAC	531	525	4.5
208 VAC	516	506	2.5
230/240 VAC	514	504	2.3

Power Supply

AC Voltage selection for this NetServer is automatically determined by the power supply.

Table A-3. Power Supply Requirements (Single Unit)

AC Input Power (50/60 Hz)	100 to 127 VAC, 5.5 A 200 to 240 VAC, 2.6 A
Maximum Continuous Input Power	540 watts maximum
Output Power	349 watts maximum

The power cord set found in your shipping box has been approved for use in the country where the NetServer was purchased. If any other power cord set is used, it must meet appropriate safety requirements in the country in which the NetServer is to be used.

Table A-4. General Cord Set Requirements

Cord set (Approved or recognized by safety agency in country of use.	250 VAC, 10 A
	125 VAC, 10 A
Maximum length	2.4 m (8 ft)

English

Environmental Requirements

The specifications listed below can vary if you install a mass storage device in your HP NetServer that has more stringent environmental limits. Ensure the operating environment is suitable for all mass storage devices in use.

Table A-5. Environmental Requirements

BTU	1845 BTU/hr maximum
Temperature	
Operating	5° C to 35°C (41°F to 95° F)
Non-operating	–40° C to +65° C (–40° F to +149° F)
Humidity	
Operating	20% to 80% relative humidity (non-condensing)
Non-operating	5% to 95% relative humidity (non-condensing)
Altitude	
Operating	-30 to 3,045 m (10,000 ft)
Non-operating	-30 to 12,180 m (40,000 ft)

Acoustic Emissions

Sound Level: (LpA) < 50 dB(A) bystander position

Physical Requirements

Table A-6. LC 2000r Weight and Dimensions

Height	216 mm (8.5 in)
Width	445 mm (17.5 in)
Depth	675 mm (26.5 in)
Weight	36 kg (80 lb) Weight excludes monitor and keyboard

Table A-7. LC 2000 Weight and Dimensions

Height	565 mm (22.3 in) with pedestal
Width	345 mm (13.6 in) with pedestal
Depth	675 mm (26.5 in)
Weight	36 kg (80 lb) Weight excludes monitor and keyboard

Table A-8. LC 2000 Minimum Space Requirements

Minimum Clearance	
Front	1 m (39.37 in)
Sides	7.5 cm (3 in)
Top	5 cm (2 in)
Back	15 cm (6 in)
System Footprint	0.12 m^2 (1.28 ft^2) without pedestal 0.20 m^2 (2.11 ft^2) with pedestal 0.84 m^2 (8.34 ft^2) with pedestal and all clearances

Table A-9. Keyboard Dimensions

Height	35 mm (1.4 in)
Width	467 mm (18.4 in)
Depth	198 mm (7.8 in)
Weight	1.9 kg (4.2 lb)
Cable Length	2 m (6.6 ft)

English

Video Support

Table A-10. Video Driver Support

Network Operating System (NOS)	HP NetServer Supported	Comments
Windows NT 3.51	No	No Support planned
Windows NT 4.0	Yes	Provided with NOS
NetWare 5	No	No Driver is available
SCO OpenServer 5.0	Yes	Drivers are provided as part of SCO Software Releases.
SCO UnixWare 7.0	Yes	
OS/2 WarpServer	Yes	Provided by ATI supported releases.
Linux	Yes	The only ATI -compatible driver available is provided by RedHat LINUX.

The HP NetServer uses an embedded video chip (ATI RageIIC) in the system board, which provides the resolutions found in Table A-10. The HP NetServer uses 2 MB of SGRAM memory, but cannot be upgraded.

Table A-11. Video Resolutions

Resolution	256 Colors	65k Colors	16.7M Colors
640 x 480	200 Hz	200 Hz	200 Hz
800 x 600	200 Hz	200 Hz	160 Hz
1024 x 768	150 Hz	150 Hz	Not supported
1152 x 864	120 Hz	120 Hz	Not supported
1280 x 1024	100 Hz	100 Hz	Not supported
1600 x 1200	76 Hz	76 Hz	Not supported

B Regulatory Information

Regulatory Notices - Electromagnetic Compliance

Electromagnetic Compatibility (EMC) requirements have been established in many countries to regulate the radio frequency energy generated by Information Technology Equipment (ITE). This energy is generated during the normal and intended use of this equipment and so it is limited by country regulations to levels intended to minimize potential interference to other electrical equipment, including public safety services.

Two levels of radio frequency energy are allowed according to the type or use of equipment. Class A levels have been established for use in commercial or business environments. Class B levels are lower than the class A requirement and have been established for use in residential environments. Class B levels are also suitable when the environment includes electrically sensitive equipment.

The NetServer equipment you have purchased has been provided with a compliance label to indicate where it may be used with reasonable protection to the environment in which it is used. Additional statements are provided below as required by the requirements of international and domestic regulations.

NOTE	Check the label on your product to determine the level of operation.

Notice for United States

Class B Equipment

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC (Federal Communications Commission) Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates and uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

Hewlett-Packard's system certification tests were conducted with HP-supported peripheral devices and HP shielded cables, such as those you receive with your computer. Changes or modifications not expressly approved by Hewlett-Packard could void the user's authority to operate the equipment. Cables used with this device must be properly shielded to comply with the requirements of the FCC.

Class A Equipment

This equipment has been tested and found to comply with the limits for Class A digital devices, pursuant to Part 15 of the FCC (Federal Communications Commission) Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user is required to correct the interference at their own expense.

Class A Accessories

Installation and use of a Class A accessory creates a system that meets the requirements for industrial and commercial environments. If you are installing a class A accessory in a system that has been labeled as a class B product, the requirements and notice for class A equipment shall be applied.

Notice for Canada (Industry Canada)

This digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

English

Notice for Japan

The configuration of the NetServer you have purchased may be in either the class A or class B category.

For products labeled as Class B:

This equipment is in the Class B category information technology equipment based on the rules of Voluntary Control Council For Interference by Information Technology Equipment (VCCI). Although aimed for residential area operation, radio interference may be caused when used near a radio or TV receiver.

Read the instructions for correct operation.

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＢ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると受信障害を引き起こすことがあります。
取り扱い説明書に従って正しい取り扱いをして下さい。

For products labeled as Class A:

This equipment is in the Class A category information technology equipment based on the rules of Voluntary Control Council For Interference by Information Technology Equipment (VCCI). When used in a residential area, radio interference may be caused. In this case, user may be required to take appropriate corrective actions.

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Notice for Korea

The configuration of the NetServer you have purchased may be in either the class A or class B category.

Class A Equipment:

Please note that this equipment has been approved for business purposes with regards to electromagnetic interference, if purchased in error for use in residential area, you may wish to exchange the equipment where you purchased it.

Class B Equipment:

Please note that this equipment has been approved for non-business purposes with regards to electromagnetic interference. This equipment can be allowed for use in all areas as well as residential areas.

A급 기기 :

이기기는 업무용으로 전자파 장해검정을 받은 기기이오니 판매자 또는 사용자는 이점을 주의하시기 바라며, 만약 잘못 구입하셨을 때에는 구입한 곳에서 비업무용으로 교환하시기 바랍니다.

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이기기는 비업무용으로 전자파 장해검정을 받은기기서 주거지역은 물론 모든 지역에서 사용할 수 있읍니다.

English

Notice for Taiwan

Class A Warning Statement

警告使用者:
這是甲類的資訊產品，在居住的
環境中使用時，可能會造成射頻
干擾，在這種情況下，使用者會
被要求採取某些適當的對策。

Notice for European Union

For Class A Products

WARNING	Class A Products: In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Radio Frequency Emissions Warning for Accessories

This product has been found to comply with CISPR 22 Class B EMC emission limits. Installation and use of a Class A accessory creates a system that meets the requirements for industrial and commercial environments. However, in a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

Declaration of Conformity (US, EU, Australia)

DECLARATION OF CONFORMITY
according to ISO/IEC Guide 22 and EN 45014

Manufacturer's/Supplier Name:	Hewlett-Packard Company
Manufacturer's/Supplier Address:	10955 Tantau Avenue Cupertino, CA 95015 USA

declares, that the product

Product Name:	Network Server
Model Number(s):	HP NetServer LC 2000/LC 2000r
Product Options:	ALL

conforms to the following Product Specifications:

Safety:	IEC 950: 1991+A1, A2, A3, A4 / EN 60950: 1992+A1, A2, A3
EMC:	CISPR 22:1993 / EN 55022:1994 EN 50081-1:1992 - Generic Emission EN 50082-1:1992 - Generic Immunity IEC 801-2:1991, 4 kV CD, 8 kV AD IEC 801-3:1984, 3 V/m IEC 801-4:1988, 0.5 kV Signal Lines, 1 kV Power Lines FCC Title 47 CFR, Part 15

Supplementary Information:
1) The product was tested in a typical configuration with Hewlett-Packard peripherals.
2) Models were configured with a network interface board and shielded twisted-pair data cable.
3) The product complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:
- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

The product herewith complies with the requirements of the following directives and carries the CE marking accordingly:
- EMC Directive 89/336/EEC including CE Marking Directive 93/68/EEC
- Low Voltage Directive 73/23/EEC

Cupertino, November 8, 1999 Regulatory Engineering Manager

North American Contact: Hewlett-Packard Company Product Regulations Manager
3000 Hanover Street, Palo Alto, CA 94304 Phone: 415-857-1501
European Contact: Your local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department ZQ / Standards Europe, Herrenberger Straße 130, D-7030 Böblingen (FAX: + 49-7031

English

Regulatory Notices - Product Safety

The following information applies only to servers with factory-installed components.

CD-ROM and Laser Safety Statements

The following information applies only to servers with factory-installed drives.

CD-ROM Electrical Safety Statement – United States

WARNING	To prevent fire or shock hazard, do not expose the unit to rain or moisture. To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

Laser Safety Statements – United States

CAUTION	This CD-ROM mass storage system contains a laser system and is classified as a "Class-1 Laser Product" under a U.S. Department of Health and Human Services (DHHS) Radiation Performance standard according to the Radiation Control for Health and Safety Act of 1968. To ensure proper use of this product, please read this instruction manual carefully and retain for future reference. Should the unit ever require maintenance, contact an authorized service location.

CAUTION	Use of controls, adjustments or the performance procedures other than those specified herein may result in hazardous radiation exposure. To prevent direct exposure to laser beam, do not try to open the enclosure.

LASER Safety - Finland

LASERTURVALLISUUS

LUOKAN 1 LASERLAITE

KLASS 1 LASER APPARAT

HP NetServer LC 2000/LC 2000r - verkkopalvelimeen voidaan asentaa lisävarusteena laitteensisainen CD-ROM-lukulaite, joka on laserlaite.

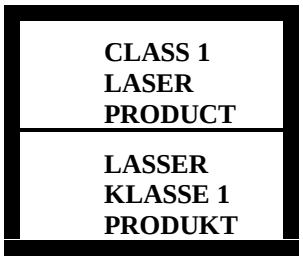
Kyseinen CD-ROM-lukulaite on käyttäjän kannalta turvallinen luokan 1 laserlaite. Normaalissa käytössä lukulaitteen suojakotelo estää laseräteen pääsyn laiteen ulkopuolelle. Laitteen turvallisuusluokka omn määritetty standardin EN 60825 (1991) mukaisesti.

Laser Safety - Germany

VORSICHT	Diese Gerät enthält ein Laser-System und ist als "LASER PRODUKT DER KLASSE 1"klassifiziert. Für den richtigen Gebrauch dieses Modells die Bedienungsanleitung sorgfältig durchlesen und als Referenz aufbewahren. Falls Probleme mit diesem Modell aufreten, die nächste "authorisierte Services-Verrtetung" benachrichtigen. Um einen direkten Kontakt mit dem Laserstrahl zu vermeiden, soll das Gehäuse nicht geöffnet werden.

VORSICHT	Die Verwendung von anderen Steuerungen oder Einstellungen oder das Durchführen von anderen Vorgängen als in der Bedienungsanleitung beschrieben kann gefährliche Strahlenexpositionen zur Folge haben.

English



This CD-ROM Drive Unit is classified as a CLASS 1 LASER PRODUCT.

The CLASS 1 LASER PRODUCT label is located on the top of the drive.

Bei diesem CD-ROM-Laufwerk CDU56S handelt es sich um ein Laser-Produkt der Klasse 1. Ein entsprechender Aufkelber mit der Beschriftung LASER KLASSE 1 PRODUKT befindet sich der Obersiete des Geräts.

Battery Statements

This product uses a lithium battery.

Battery Statements – United States

WARNING	Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Battery Statements – France

AVERTISSEMENT	Il y a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

Noise and Ergonomic Safety Statements

Noise Declaration and Ergonomics - Germany

Sound Pressure: LpA < 55 dB (A)

am Arbeitsplatz, Beobachter Position (workplace, bystander position)
normaler Betrieb (normal operation)
nach DIN 45635 T. 19 (per ISO 7779)

This product has not been evaluated for compliance with the ZH1/618/ISO 9241 ergonomic requirements.

C Service and Support

English

For all Service and Support information, see *the HP NetServer Warranty and Service/Support Booklet* included with your product.

D Warranty and Software License

Warranty

See the *HP NetServer Warranty and Service/Support Booklet* included with your product for all warranty and service/support information.

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If your Computer was shipped with a Recovery CD, (i) the Recovery CD and/or Support Utility software may be used only for restoring the hard disk of the HP computer system with which the Recovery CD originally was provided, and (ii) if separate EULA(s) are included with your Computer for any other MS products which are included on the Recovery CD, those MS products are subject to the terms of their respective EULA(s).

No Disassembly or Decryption. You may not disassemble or decompile the Software unless HP's prior written consent is obtained. In some jurisdictions, HP's consent may not be required for limited disassembly or decompilation. Upon request, you will provide HP with reasonably detailed information regarding any disassembly or decompilation. You may not decrypt the Software unless decryption is a necessary part of the operation of the Software.

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